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Technical Education for Farmers.

A mistaken idea is prevalent as to the value of a collegiate education. In none of the learned professions, law, medicine, theology, does it do more than fit the student for their study. It fills the same want that preparatory schools do for a future collegiate course. That is all.

And a student that is fitted for and graduates at an agricultural and mechanical college stands upon the same level, and is entitled to the same respect as the alumnus of any other. To no more and no less. In fact, there is as much difference shown in society to a graduate of Harvard and to one of the Delaware college as these can possibly show to one from an agricultural college.

If so, then in what does the difference between the graduates of the two consist? Is it in the range of studies? Certainly not. Setting aside Latin and Greek, which have little bearing on any of the learned professions except theology, and even these are neglected and little used after graduation except by those who long to get to the bottom of things, the difference is very small. Taking out also mental and moral philosophy, they run almost parallel courses; physics, chemistry, botany, zoology being taught in both. And in these Henry, Silliman, Torrey, Wood, Agassiz, Coues, and others have made quite as great a reputation as Anthon, Woolsey, Dwight, and McCosh in the languages and mental philosophy. Then why on the score of fame consider an A. M. in these sciences beneath that for these other studies.

A fatal mistake has crept into the minds of farmers that their pursuit is all practice, and not theory. It is time that they know that their fertilizers come from the chemist's laboratory; their improved stock from the suggestion of naturalists, and their improved grasses from the botanist. It is scientific research which marks and defines the climate, the soil and the heredity of each. She tells with almost unfailing precision how crosses, fertilization, and kindred means may be cheaply and effectively used. A knowledge of these laws would save the farmers endless vexation, and an immense amount not only of money, but of time, more precious still. Let one take a statistical atlas and see within what narrow bounds the timothy and grape sections of their union lie. Or where blue grass, Kentucky's boast, flourishes best even in that small state; or what is more important, how small a section of the great West, in Michigan, small fruits, or indeed those of any kind, are grown free from the constant danger of frosts, where a single cold winter sweeps the fond hopes, and the pride of the farmer, even as an earlier winter of some fifteen days than had been for twenty years, ruined Napoleon at Moscow.

It is ignorance of nature and her laws that wastes the manure and blights the hopes of the agriculturist. The physician of to-day has to meet diseases brought on by mental toll, and not by exposure; hence he stimulates and does not deplete. The theologian talks more of the Saviour's wondrous love and less of that hell, mysterious *eternæ mortali*.

mind has yet fathomed. The lawyers find the learning of Touchstone, of Coke upon Littleton, and old Bracton, with Bacon's and Comyn's digests swept out by the codes, Congressional and Legislative acts of the age of commercial and speculative progress; when the steamboat, railroad, and telegraph have almost annihilated distance, and the telephone bids fair to make intercourse as private as a man's office or parlor.

But while all this advance is making in every direction, and thousands of mouths must be fed from the opening up of these new pursuits, farmers seem to forget that their lands are yearly yielding less, their stock decreasing in consequence; that in many sections they have to buy building and fencing materials where they formerly had them to sell.

All over the country we have unions, associations, societies, where the latest discoveries are made known, and discussed; their wants unfolded and concentrated; thought brought to bear on it for their supply; special schools exist everywhere; and the boy of twenty goes out fully equipped and armed, equal to the veterans of forty years.

Is there then no necessity for the farmer to have a special education in all that pertains to his pursuit, embracing within its folds an absolute and thorough acquaintance with so many complex sciences?

Prof. Brewer, in a forthcoming volume from the Census Bureau, shows that nearly all the corn is raised where the midsummer temperature is between seventy and eighty degrees, and that a difference of only five degrees makes a difference of 39 per cent. in the yield, and that one of five inches of rain fall makes one of 34 per cent. How many farmers keep a thermometer to inform them that local causes, such as proximity to mountains, the prevailing winds, or the poverty of the soil may not make for them, an unremunerative and uncertain crop? And it will do it when the average is below it, caused by a single one of these causes, or all combined.

These things all point to a technical education, where the results of thousands of observations may be classified, arranged, and the results compressed into a few words, even as the bulletins from the signal station in Washington do the observations of the numerous ones located in various sections of the country.

Above all this, technical education would teach how and when to observe the weather, the winds, the earliest flowers, the coming of the migratory birds, and when they commenced to build; when the leaves of different trees appeared; what degree of cold killed the fruit buds, and the direction of the winds; what degree of saturation the air had, etc. And from these lines might be formed showing the isothermal line of that location from which data might be deduced with reasonable certainty when a crop should be planted to escape wet or drought, and with that the correspondent cultivation to insure the best result.

Our farmers are too careless in their experiments. They need the French precision

which has demonstrated that a sparrow requires 63 per cent. of its weight for support while the cow requires but 3. Other illustrations might be given, and will readily suggest themselves.

The public schools are improving in their range of studies; colleges are extending their courses, and reaching higher; technical schools for engineers, metallurgists, chemists, pharmacists and physicians, are met at every turn. Even the bee-keepers have a school where you can be taught all its mysteries, from how to know a prolific queen down to how much a hive ought to weigh to carry the swarm safely through the winter.

When our farmers will see that their agricultural colleges are not officered by broken down preachers and army and naval officers; when they teach you to know when land is too wet, or too dry, for cultivation; what soils are best for corn, and what for wheat; what manures pay best for each on white and red clay soils, on sandy and black gum soils; when grasses are better understood, and the mode of alleviating, or removing, defects of soil and climate pointed out in them, and their graduates show themselves masters of their profession, then to scan a line of Horace, construe a Greek tragedy, or talk learnedly of asymptotes, parabolas, or universal algebra and partitions will not be considered higher education, as it is now.

A man who is master of his trade, or profession, is always respected, whether he studies the heavens as Herschell did, or tends sheep on stilts while knitting stockings like the shepherds of Lanns.

Farmers ought to be proud of their profession. An ignorant man seldom is; a truly educated man always is.

A. H. A.
Topics from Abroad.

(From our Correspondent in Paris.)

ENSLAGE.—There is nothing new to be added to the system of ensilage, as introduced and popularized by M. Goffart. The tendency is to apply the principles of that system to other forage besides green maize. It is thus that some agriculturists are timidly essaying the ensilage of grass, instead of converting into hay. Experiments so far are too small and too limited to justify drawing any conclusions. In point of expense, nothing of importance is to be gained. The advantage must be sought in the greater bulk of fodder realized in the silo or trench plan. Hay is one of the best paying crops on the Continent: it ever brings a good price, and suits at all times the market or the farm.

THOSINTE (*Roeana luxurians*) is a forage plant admirably adapted for countries where cold is not to be dreaded and frosts unknown. Thus it thrives well in Algeria, and is making way in Italy and Spain. Originally the plant has come from Guatemala. A humid heat makes this new grass flourish luxuriantly. It often exceeds six feet in height: the stems are sweetish, and when chaffed form an excellent food for cattle. Several cuttings, if the soil can be irrigated, can be

obtained in a season, but the plant must not be allowed to reach the seed stage.

Messrs. Schmoeger & Neubert, of Proskau, have concluded a series of experiments on 57 Dutch milch cows, the average weight of each animal being 10 cwt., to test the influence of distillery refuse, grains, maize, potatoes, etc., on the secretion of milk, in point of the latter's richness in fatty matters, in density, and in quantity. Green forage, cut straw and grains, in various proportions were tried, and at fixed intervals. The results revealed that in point of richness the use of grains did not tell on the milk, and as the yield was greater the quantity of fatty matter was consequently increased. The density of the milk, that is the quantity of dry matter contained in it, was less. The residue of maize was, for general feeding purposes, very much superior to that of potatoes.

HORSES.—While in Germany, Austria and Hungary, the tendency is to produce light horses, in France the desire is to have draught animals. Much of this difference is due to the leaning in France to have only two-wheeled carts, not four-wheeled wagons. Both vehicles have their advantages, following the circumstances under which they may be employed, but as a general rule, the two-wheeled cart is viewed as the best for carrying the most useful amount of dead weight with the least efforts of traction.

If the power of a country to make war be measured by its richness in horses, France has reason to be alarmed. In point of numbers she is not deficient, but in respect to quality she has everything to gain. The animals are defective in form, and not adapted to the work for which they are employed. The evil may be traced to a single cause, indifference to the choice, not of sires, but of breeding mares. In 1881, France imported 22,168, and exported 10,840 horses. England and Germany furnished saddle and carriage horses; Switzerland and Belgium, those for draught. The horses exported belonged chiefly to the Percheron and the Anglo-Norman breeds. France has three millions of horses, and yet she cannot supply the wants of her own army. She sacrifices every year millions of francs on breeding studs, but the amelioration of the horses of the country is not perceptible. It does not pay farmers to rear horses, and the gentry, who formerly did so, now abstain.

In 1859, when France declared war against Italy, she wanted 56,000 horses, and could only obtain 13,000 fit for campaigning. In 1870 she required 120,000 horses; of this number 40,000 were purchased, and of the 80,000 requisitioned, only one-fourth were found suitable for cavalry. To-day the army represents 90,800 horses for the artillery and cavalry; 11,000 of this total has to be annually renewed. Were a war to break out France would require an immediate supply of 80,000 horses, and she is not in a better position to meet that demand than in 1859 and 1870. There is only one means to solve the chronic difficulty—breed horses in Algeria, a colony admirably adapted for the industry, and to which the government and

private enterprise intend supplying the means.

CONTAGIOUS GERMS.—Veterinary Professor Bouley has broached an important idea, that well merits following up by close observation and experiment. He starts from the results obtained by the labors of Davaine and Pasteur, viz.: that by changing the composition of the liquid in which the microbes, those germs of contagious diseases live, we thus render the liquid unsuitable for their development. The consequence would be to render man and animals invulnerable to the attacks of such contagious germs. For example, a small quantity of nitrate of silver will check at once the development of some microscopic plants; an alkaline sulphite can stop, if administered in the early stages, several kinds of fevers, as Doctors Pollie and Mazzolini have shown. Small doses of arsenic can protect man from malarial fevers, and which attack not only man, but cattle, horses, dogs and rabbits. Intermittent fever is counteracted by quinine. Dr. Burg has demonstrated that artisans employed in trades where copper is worked up, invariably escape fevers and cholera. An atmosphere containing sulphured hydrogen checks decomposition and modifies consumptive disease and glanders. Mineral waters exercise influences on maladies, but of whose action we are yet in a state of ignorance.

FOOT AND MOUTH DISEASE.—M. Felizet, veterinary surgeon near Rouen, propounds a novel means for treating this disease. He immediately separates, either in paddock or stable, the affected cattle. He selects some dainty food, young carrots for example, cuts them into small slices and places them under the mouths of the diseased stock, so that their saliva may drop thereon. This infected food he presents to the healthy cattle to infect them; that end secured, he, after two days, opens their mouths, lances with a scissors all the swellings, clipe away the flabby membranes and washes the mouth and throat three times per day, by means of a portable cloth mop, with a solution composed of a tumbler of strong vinegar, three-quarters of an ounce of pulverized calcined alum, three ounces of honey and two and a half quarts of water. The fore feet are pared, etc., and smeared three times a day with a solution of half a pound of quick lime dissolved in 14 quarts of water. The hind feet are daubed with it also. M. Felizet asserts this is the speediest way of dealing with the disease, and secures stock for three years against the return of the malady.

Experiments in Plowing.

Mr. Knox, the veteran plow maker of the Ames Plow Co., has called our attention to the effect of deep plowing of some soils to offset the danger from lack of rains in dry seasons. Some years ago, an experiment was made by a western Massachusetts farmer in plowing portions of a large field at varying depths. One part was turned over seven inches deep, another ten inches, and a third, after being plowed ten inches, was subsoiled to the depth of ten inches more, making a soil comparatively loose to the depth of twenty inches. The next year, which was a dry one during the summer, corn was grown upon the whole field, which was treated in a uniform manner throughout, and the yield of the three divisions carefully measured. The seven-inch plowing yielded as well as the ordinary fields in the vicinity. That part plowed ten inches deep was greener all through the season, and gave a decidedly better yield, but that which was plowed ten inches and subsoiled ten inches in addition, produced just about one-third more corn than that part plowed in the usual way, seven inches deep. The next year, the whole field was, by agreement, sowed to oats, as a continuation of the experiment, the season proving even drier than the preceding one,

when corn was grown. When the oats were about ready to cut, Mr. Knox being in the neighborhood, called to see them. Before reaching the farm, the field came in view from the car windows, and Mr. Knox, who was on the lookout, said to a companion, that the gentleman had not done as he had agreed, for he could see that he had sown different kinds of grain upon the different plots, the size and color of the growth both marking the lines, dividing the lands plowed at the three different depths. But on arriving at the field, he found nothing but oats, and as stated by the owner, all sown on the same day, and treated precisely alike in every respect.

On the shallow plowed section, the growth was short, and the straw yellow; on the ten-inch plowing, the oats were taller and less yellow, while on the subsoiled portion they were green and very heavy. The final tests showed fully one-third more grain on the subsoiled part than on that which was plowed only seven inches deep.

Now, it will not do for farmers to calculate that deeply stirring every kind of soils would alone add fifty per cent. to the yield of crops grown upon them the following two years, for they would doubtless be disappointed in very many cases. Yet, as a rule, a deep, mellow soil from which surplus water can readily settle without making the land into mortar, and through which the same moisture can again freely rise by capillary attraction, other things being equal, will always bring a farmer the better results.

There are soils which naturally are never too wet, and rarely too dry, and it will usually be found on examination, that they are in the same mechanical condition for a considerable depth, say two feet or more, that one likes to have his surface soil light, friable and containing a due proportion of vegetable matter. They will also be found to contain sand and clay in about the right proportion to keep the soil both mellow and moist through the varying climatic conditions. Deep plowing of stiff clays is often dangerous at first, but a good, dry soil suits all kinds of crops in all kinds of weather. Deep plowing tends to make such a soil, but this alone will not always be sufficient. Draining and manuring must accompany deep plowing.—*N. E. Farmer.*

Thick and Thin Seeding of Grains.

The question as to the quantity of seed to sow, is one which has puzzled farmers who have a right to be classed as among the most intelligent of their class—and is one which must be determined by close observation and practical demonstration. A correspondent of the *Country Gentleman* endeavors to throw some light upon the subject, and is unwilling to hide from his brother farmers the result of his investigations and experience, a course which should be more generally followed than is the case. Different soils (he says) in various conditions require different amounts of seed, and while it is a common mistake to use too much seed of all kinds, it is also common to see fields of grain and grass where more seed would have increased the crop. With grain and hood crops, overcrowding of plants always results in a smaller yield and inferior quality of the crop. But there is great difficulty in hitting a happy medium between too thick and too thin seeding. We must learn to adjust the proper amount of seed to the various kinds and conditions of soils, and it is hardly wise to advise thin seeding at all times.

On low river bottoms, where nearly all kinds of noxious weeds abound, it is necessary to sow spring grain rather thick to prevent damage to the crop from weeds. One may be sure that the land will be occupied, and unless by the crop, weeds will fill the vacancies. The same applies to land subject to the depredations of wire and cut-worms. I have had oats and barley prop-

erly seeded so thinned out by worms that the yield was seriously curtailed, which would probably have been obviated by heavier seeding. Rich, clean land, in good condition, requires very much less seed than a poor soil, poorly prepared, or very foul with weeds. The excellent results which sometimes come from a thin seeding—where conditions are favorable—are suggestive and significant. Last year, I harvested over 800 bushels of oats from a field of twelve acres after the seeding was so thinned out by worms as to cause much regret for anticipated failure. The result was full development of every plant, and large, well filled heads. Had the soil been poor, or the season less favorable, the results would have been different.

Ensilage in the South.

Ensilage seems to be making its way rapidly in favor in the South. The following is a contribution from Col. W. L. Heyward, of Atlanta, Ga., to the *Southern Cultivator*.

The value of the silo when fully appreciated by the farmers of the South, will cause a new departure from the old practice of planting only cotton and purchasing corn, mules and meat. Each farmer, by the use of a silo, can raise not only his cattle, but mules, horses, sheep and even hogs, the contents of the silo having been fed with satisfactory results to those animals, and also to poultry.

The South is the place for the silo. There is not an acre of cultivated land south of North Carolina, that cannot be made to produce, yearly, good crops suitable for filling the silo, each of more value to the farmer than one bale of cotton. For illustration, take in the month October an acre of land, sow it heavily in rust-proof oats. In May, when in milk, cut and fill silo. If the season has been an average one your silo will contain fifteen tons of best of food, worth as much as five tons of meadow hay. On the same acre plant sweet potatoes; when the potatoes are ripe cut the vines and fill your silo. An average season will give not less than fifteen tons; the potatoes made will pay the expenses of the two crops. If in the spring, plant an acre of forage corn, by the middle of June cut and fill silo. If your land has been made rich your silo will contain from twenty-five to fifty tons. As soon as the forage corn has been removed plant the land in cow peas, sow them thick. When the peas are in full bloom, cut and fill silo. An average crop will give you fifteen tons. From the two acres thus cultivated we have made seventy-five tons of feed, worth as much as twenty-five tons of hay. In fact, to the farmer, it is more valuable than hay, for with ensilage he can feed not only cows, mules, horses, sheep, but hogs, and even poultry. The daily feed for a cow, is from fifty to sixty pounds of ensilage, so one can easily calculate how much stock his silo will sustain. The cost of the crops for ensilage will depend principally on the preparation of the land and the amount of manure used. I know of but one rule for manuring land—"put on all you can afford to pay for, shut your eyes and put on twice as much again."

By the use of the silo the farmer can utilize the pea and sweet potato vine; both, without the silo, are nearly useless as forage plants. To cure them is nearly an impossibility—the same may be said of forage corn, it is easily made, but the curing of it is so difficult, that it has nearly been abandoned as a forage plant, except a few patches are planted for soiling purposes; other forage plants may be used, but I think those mentioned will give the best results, except that cat-tail or pearl millet may be substituted for the forage corn, the yield per acre being greater, but I doubt if the millet ensilage is as good as that of the forage corn; but let each farmer experiment for himself and

report the results to the State Commissioners of Agriculture, in order that the farmers throughout the State may have the benefit of his experience.

Now, as to the construction of the silo. Without discussing the different kinds of silos, I will describe one that will be suitable for all practical purposes, and can be made by any farmer in the South with the laborers that he has hired on his farm. First, dig an excavation in the ground, as near your barn as possible, four feet deep, twenty-four feet long, and eight feet wide; plank up the sides, commencing at bottom of pit, eight feet high, with one and a quarter inch seasoned plank, divide into four compartments, the divisions are made of 2 x 6 plank, and well braced so divisions will not bulge when one apartment only is filled and weighted. The posts upon which the sides are nailed should extend on one side two, and the other four feet above the side of the silo, upon them the roof is made, the openings at the end and sides all left to put your forage in. If the eaves extend one to one and a-half feet beyond the sides, no rain can get to the ensilage that will do any damage. After the walls, divisions and roof of the silo are finished, bank the dirt on the outside as high as possible, pack well, and then sod in Bermuda grass. At the ends and the sides next the barn, place steps entire height of silo, which will prevent your soda from being injured by persons getting in or out. The covers used should be two inch plank, cut one inch shorter than the width of the section in which the ensilage is placed, in order that there will be no catching of the covers when the ensilage settles. Around the silo should be placed an under-drain, six inches deeper than the bottom of the pit to prevent seepage water entering the silo. The forage when being placed in the silo should be thoroughly tramped. The covers when placed on should be heavily weighted with rocks, logs, sand bags, or barrels filled with dirt. You can't put on too much weight. You can too little. Most of the failures that have occurred have been caused by not having used sufficient weight. Many farmers are deterred from building a silo, believing that forage corn cannot be packed, unless first run through a chopper; for their benefit I will state that in my silo, built nearly like the one described, I packed six well tramped two-horse wagon loads of forage corn, uncut, so thoroughly that when completed the mass was only two feet thick, the packing was done by two hands, who spread the corn from each load over the floor before the tramping commenced. The ensilage is ready for use in about three weeks from the time it has been packed, it will keep for months, if not years. In the silo described, the ensilage, when needed is reached by removing one plank, and cutting through the mass perpendicularly until the bottom has been reached, when another plank is moved, and so on, until the section is emptied.

What Lands to Drain.

All lands, in the opinion of the *Indiana Farmer*, that contain more water than is needed by the crops growing upon them. If you intend to raise corn or wheat, the land will need more draining than if intended for grass. Even grass lands need not be very wet, as if too wet, the growth of aquatic plants and grasses takes the place of the cultivated grasses and ruins the hay and pastures.

Loose, porous soils, underlaid by sand or gravel, are drained by nature; but all land that is underlaid by clay, rock or other impervious material, needs draining.

What is to be gained by underdrainage? The surface of the water in the soil is lowered. The roots of cereals and grasses may penetrate as far as to the surface of the water er, but never into it. It is necessary to draw

the water off to such a depth as will give the roots of growing crops plenty of room to move downward for that nourishment that is necessary to their growth.

The lowering the water below the surface prevents a large amount of evaporation, and its effect is cooling the soil. The water being removed, air and warmth admitted to the soil.

Drained lands are for this reason ready for planting at least one week earlier in the spring. The growth of crops is quickened through the summer by the increased temperature of the soil, which amounts to several degrees, and the injurious effects of early frosts are prevented in the same manner. Crops, are therefore, given an increased period in which to make their growth of at least two weeks. This certainly is a very important gain.

Observations on Corn.—Various Kinds.

BULLETIN NO. 60—N. Y. EXPERIMENT STATION.

There are a number of distinct races of *Zea mays L.* the corn plant, which receive popular recognition by common names. Such are the Pops, Flints, Dents, Sweets, Tuscarora or Softs, and the curious variety known as the husk or podded corn. These differ from each other, more or less, in the structure of the kernel, and in the habit of ripening and growth. The flint corn kernel, when split open, is found to show three structures, the chit or germ, lying in a starchy substance, which is surrounded by a corneous envelope. The corn ripens from outward inward. The dent corn has the chit, the starch and the corneous envelope, but the corneous portion occupies the sides, while at the terminal portion the starch comes to the surface. This kind of corn ripens from within outward. The Tuscarora or soft corn is composed of the chit, and a starchy portion, the corneous portion being absent. This ripens from the outside inward.

The sweet corn shows the chit and the corneous portion without visible starch. To these four types we can at present refer all the kinds that we know of, and these types preserve a constancy which is truly remarkable. In examining over 300 kernels of different kinds of corn we have found, thus far, no exception, and, hence it seems eminently proper and desirable that these types should receive a name in the guise of botanical nomenclature, in order that observations may be referred to the type selected, and thus confusion, as between experimenters, avoided. I would propose the use of a symbol between the generic and the specific name, which symbol shall indicate agricultural botany, and will show that the naming does not attempt to decide whether a true bontanical species or not. Thus, for the flint corns, I would suggest *Zea * indurata*; for the dent corns *Zea * indentata*; for the sugar corns *Zea * saccharata*, and for the soft or Tuscarora corns *Zea * amyacea*.

In some experiments at the Station upon the germinating quality, etc., of the butt, central and tip kernels of corn the Station data plainly showed for the flint corn used, the *Zea * indurata* of our classification, a superiority of the tip kernels, while in experiments carried on in like manner with the Dent corns, the *Zea * indentata* of our classification, the opposite fact held true. Certain writers for the papers have mentioned the apparent discrepancies of the results gained by Prof. Lazenby at the Ohio Agricultural Experiment Station upon this same subject, overlooking the fact that his data applied to the *Zea * indentata* race. With this explanation it is seen that the results gained at the two experiment stations are not conflicting, while at the same time the misinterpretation of the result by the public is good evidence in favor of the necessity of some kind of a classification in agricultural botany, based upon the botanical system of

naming. When our studies have sufficiently progressed to enable us to classify agricultural plants in a systematical way, we then shall expect to see a recognition of the agreements in the results which are apparently conflicting, while really corroborative. Whether our attempted classification is botanically correct or not our data at present does not enable us to assert, but we are willing to say that all the evidence that we possess seems to be in favor of the view that the *Zea mays* of botanists presents at least four well-defined types, perhaps species. By using the symbol, however, as indicated, we may be saved the present necessity of deciding this point, and may gain the great convenience which a classification based upon permanent features must always give. Hence we suggest that by agricultural writers six races of maize be recognized, the four already given and two additional ones, as represented in the following table.

*Zea * everita*, the Pop corns.
*Zea * indurata*, the Flint corns.
*Zea * indentata*, the Dent corns.
*Zea * amyacea*, the Soft or Tuscarora corns.
*Zea * saccharata*, the Sweet corns.
*Zea * vaginata*, the Husk or Podded corns.

The results of our experiments up to date clearly show that the different races of corn may have different habits and differently react to the factors of culture, a possibility that the crossing of these types is unfavorable to crop, while the crossing within these types may be favorable to crop. The whole matter however, is of sufficient importance to justify most careful observations and the consulting of a wide experience, as being of a practical nature immediately available so soon as the true facts can be formulated into correct expression.

E. LEWIS STURTEVANT, Director.

Millo Maize.

Some of our Southern exchanges had a good deal to say last season about this forage plant. Now, Mr. W. B. Jones, of Georgia, writes as follows to the *Southern Cultivator*:

What do the friends of Millo maize say of this plant now after a longer trial? Three years ago we planted here a few seed of Rural branching sorghum. Afterwards we got Millo maize seed, and have parcels of different importations and from home growers. If these two seeds are not identical (the same plant), I am ignorant of where the difference exists. All mature (if at all), last of October to middle of November. Indeed, on my hot, sandy soil, I never have of the three years obtained a fully matured crop before the frost and freezes had cut off much of it. Now, all my sorghums are in full bloom—some matured, ready to harvest—and my Millo maize (of a number of parcels of seed grown elsewhere) and by myself here, have not yet bunched for tassel. It doubtless will mature seed by last of October. Now, as a green forage (green soiling plant), we deem it here worthless. The stalk is bitter and my stock won't eat it. I don't think it digestible or a proper food for any stock. The *Plat* millet planted here for forty years is far superior. Millo maize, is harsh, bitter, silicated, (if you will allow this to convey my idea). Pearl millet (cat tail millet) is succulent, sweet, easier of digestion, and my stock eat it greedily all summer and fall and are never sickened by it. Amber cane or other of the sorghums, are far superior to Millo maize as soiling plants. And yet this latter I esteem a very valuable acquisition to our Southern supply. It matures here late. The seed are hard and escape weevils. Can be kept two years like pearl millet, when the Dhouras and sorghum seeds, as African wheat, are eaten up before July. If thrashed cannot be kept during one summer. Millo maize and pearl millet keep here like flint corn two years with impunity. I find it good ground for stock or given to poultry whole.

Ashes as a Manure.

Wood ashes, the best of saline manures, are also counted with the most economical, because in many sections of the country these are largely produced by every household. Ashes improve all soils that are deficient in the principles which they contain, and are especially adapted to root crops, grains and grasses. Ashes, when applied in connection with bone-dust, produces excellent results on turnips, potatoes, and all the roots, in fact—clover, beans, and the grasses. Ashes and gypsum mixed form an admirable dressing.

Leached ashes, having been deprived of a part of their potash and soda, represent only about one-half of the value of the unleached, hence should be applied in nearly or quite double the quantity of the latter. The quantity unleached wood ashes that should be applied to the acre varies with the character of the soil and crop. Rich soils and clay lands call for heavier dressing than do light soils—say fifteen bushels for the first named and thirty bushels for the former. Ashes are applied in a variety of ways; they may be drilled in the soil, sown broadcast, or mixed with the muck heap.

Repeating the dressing of ashes without a sufficient amount of vegetable or yard manure will in time prove detrimental, but there is not much danger of this mistake nowadays. Farmers appreciate the value of the wood ashes and are anxious to distribute them over such a variety of crops that no one field is likely to get too much.

Coal ashes are decidedly inferior to wood ashes and depend largely on their mechanical influence for value. They are better adapted to heavy than to light soils.—*N. Y. World*.

Live Stock.

Judges at Agricultural Fairs.

The difficulties attending upon the selection of judges of live stock, etc., at the fairs, to obtain at the show time confident and faithful judges, are well known to all who have had any share in the contest of these fairs. A notable instance, given by the *National Live-Stock Journal*, is here given:

"At the recent Illinois State Fair, in the sweepstakes for best herds of the beef breeds, first premium was awarded to Messrs. Fowler & Van Natta's Herefords, second to Messrs. J. H. Potts & Son's Short-horns, and third to Messrs. Anderson & Findlay's Polled Angus herd. Breeders of Herefords were quite elated over the success of their favorites. In sweepstakes for best young herd of the beef breeds, first premium went to J. H. Potts & Son's Short-horns; second to the Wyoming Hereford Association; and third to Mr. C. M. Culbertson's Herefords."

The *Journal* adds:

"The unsatisfactory result of selecting judges in the usual way, was shown in the case of Messrs. Fowler & Van Natta's Herefords, at the recent Illinois State Fair. By one committee they were not considered entitled the first premium in their class, but a different committee pronounced them the best herd of the beef breeds on the ground, and they were accordingly given the \$500 prize."

The Difference.

Time is the most valuable element entering into every enterprise we undertake, and certainly the most important one, which should be first considered. How long a time will it require, and not how much money will it cost, should be the first question asked. Money should be saved wherever economy can be judiciously practiced; but time is of still more importance. Money can be replaced, but time cannot be, and none of us have but one life to live here, and a short one at that; so whatever is done should be

done in as short time as possible. The farmer, by an extreme economy in breeding, never spending a cent when it can be by any possibility be avoided, can pick up at isolated times tolerable fair bulls, or good grades, at little cost, and after the lapse of years bring his stock to a fair degree of excellence, without realizing that it has cost him much, if anything, in actual outlay of money. But he can better afford to pursue a more direct course, and by the prompt purchase and the successive and unbroken use of good bulls reach the same or more advanced ground in a brief period. Whatever of additional money is expended at the outset will be very quickly returned, and the farmer will be enjoying the satisfaction and profit of improved stock for many years before his scrapping and planning could bring it up to anything like a desirable standard by any other course. If it is conceded that improved stock is better than the common, then get the best as quickly as possible and realize all the advantage there is in it. The price of the bull you contemplate seems a little high—if you wait until another season you can perhaps find as good a one for half the money, but the want of his use in the meantime may cost you \$5 or \$10 for every one you save by waiting. You may buy one not just to your liking, but "almost as good," for ten or twenty dollars less money, and your first crop of calves may be worth \$50 or a \$100 less than would have been realized from the use of the better bull. Suppose a little too much is paid for the bull in the first place, if he is a good one, the young things that are to come will grow out the difference in a month.—*Breeders' Gazette*.

Breeds of Horses.

There are not so many distinct, well-defined breeds of horses as of cattle or sheep. They are usually classified by their special adaptation into running, trotting, pacing, these two shading into the roadster class, general purpose and heavy draft horses.

The thorough-bred or running horse is one of the most clearly established breeds, much attention having been paid to their breeding both in Great Britain and this country for many years. They trace to the Arabian or other "desert" horses of eastern countries, but are largely the product of British skill in selection and training. They differ much in color, with bay, brown, and chestnut favorites, and in size often being quite tall, but are never of great weight, 15½ hands high and 1,100 lbs. weight being above the average. They are slender, rather long-legged, with smallish head, light neck, chest narrow rather than broad, well sprung ribs, a fine back and loin, and long hind quarters. The mane and tail are usually light, the hair is fine and the skin thin. They are very high spirited, usually too much so for quiet working, but their great energy, endurance, and fineness of texture have made them of great value in improving coarse, dull breeds. The name, thorough-bred, belongs to them by established usage, and should not be applied to other breeds.

The fast trotting horse of this country is emphatically an American product, and is now fairly entitled to be called a distinct breed, although there is no established type in form, color or weight. Fast trotters vary from 14 to 17 hands high; from 700 to 1,400 lbs. weight, and from the slight form of the runner to almost that of a plow-horse. As seen on the track they are in thin flesh, and look thin and long-legged; but many of them are powerfully muscled and have sufficient size for any ordinary work. The majority of trotting horses are descended from running stock on one or both sides, but generally the running ancestry is rather remote. There are several noted families of trotters, but these are not distinct breeds. The Hambletonian, Clay and Mambrino are among these families. There is no distinct breed of

pacing horses, and their descent is often not easily traced. Many fast trotting horses also pace fast. Perhaps the most common outward characteristic of pacers is a drooping rump; but not all pacers have this, and many horses with such rumps do not pace.

The roadster class and the indefinite general-purpose class are made up of horses of various crosses. Trotting-bred horses are often found among these.

Of draft horses we have had large importations from France, Scotland and England, and there is much interest taken in their breeding. Farmers in many parts of the West find breeding them more profitable than in any other part of their business.

The French horses are called Percherons or Normans or both of these names combined; although Percherons is the only name applied in their native country to the horses that are usually brought from France to America. These horses are most generally dapple grey, but black and other dark colors are becoming more popular. A somewhat drooping rump is common. Imported horses usually have their tails "docked" or shortened. These horses are from 15 to 17 hands high and weigh from 1,400 to 2,000 pounds, or more. They are very strongly built, often have good action; are of quiet disposition. In contrast with the British breeds to be named, they have clean legs,

The Clydesdales take their name from the river Clyde, in Scotland. It is one of the most popular British breeds of heavy horses. Bay or brown, with white on face and on some or all their feet are the favorite colors. The lower part of the legs is covered with long hair, and this is prized as a characteristic of good breeding. The Clydesdales have rather large heads, somewhat sloping shoulders; the back and body are rather long; the hind quarters long and well developed. They are claimed to be unsurpassed in flatness and strength of bone in the legs, and to have an unusually good step in walking.

The English Draft or Shire horse varies considerably, but in general much resembles the Clydesdale; the two classes having been often crossed. They average somewhat more in size and weight; have heavier bodies, and the long hair on the legs is equally prized. The two breeds last above-mentioned have so many characteristics in common, that it will frequently puzzle even an expert to distinguish them in the show ring.—*Breeders' Gazette.*

Quarter-Crack.

Fissures of the hoof known as *false quarter*, *quarter-crack*, *sand-crack*, etc., are often mistaken the one for the other, and it is perhaps well to call the attention of our readers to this fact. A false quarter cannot be cured, but quarter-cracks and toe-cracks are, as a general rule, easily managed. The former defect is invariably to be attributed to some injury of the coronary substance whereby its integrity becomes destroyed; its function is to a certain extent destroyed, and the result is that no horn is secreted at the point of injury, hence there is a chasm left which is very liable to exist as long as the animal lives. A sand-crack is a fissure in the hoof which may extend from the coronet to the sole, or only part of the way, with, however, no injury to the coronary substance. It is called quarter-crack when the fissure is located on the inner or outer quarter of the hoof, and a toe-crack when it is located in front. The degree of lameness which is present in those cases will depend on circumstances. In cases where the fissure extends from the coronet to the sole and is sufficiently deep to penetrate the wall of the hoof and thus expose the sensitive laminae, the lameness which follows is often excessive, but in cases where the fissure does not penetrate through the wall of the hoof, the lameness is often

very trifling, and sometimes there is no lameness at all. The treatment will of course have to be regulated according to the nature, condition, and location of the sand-crack. Some of these injuries are so trifling as to require nothing more than the application of a blister on the coronet, and a little rest. In cases where the fissure extends from the coronet to the sole, accompanied with more or less lameness, it is a common practice to take a hot iron with an edge as sharp as a cent, and burn a chasm directly across the fissure, about one inch long, as near to the coronet as practicable, and sufficiently deep to penetrate the horn, at the same time being careful not to injure the textures underneath. This done, a blister may be applied, as already directed. Next give some attention to the shoeing of the patient. The heel of the shoe should be sufficiently sprung to relieve all pressure from the affected quarter, and if necessary the heel may be sufficiently lowered to facilitate the proper adjustment of the shoe—a bar shoe is perhaps the best. In the treatment of cases where the lameness is excessive, you will find, on making a proper examination, that the fissure penetrates through the wall, leaving the sensitive laminae exposed—perhaps some foreign substance, such as sand, has worked in between the divided edges of the hoof, for this is always a source of great irritation. In those cases the frequent application of poultices and warm fomentations will be found necessary.—Ex.

Two Crops of Lambs a Year.

The experiment of raising two sets of lambs a year has been successfully tried in Ohio. Mr. Ed. Morgan, of Champaign county, writing to the *Ohio Farmer*, says:

"In the spring of 1882, after washing our sheep, supposing that no evil would result from it, we let the ram run with our breeding ewes (then sucking lambs dropped from March the 15th to April 15th,) until shearing. In the fall, about November 1st, fifteen or eighteen of these same ewes dropped lambs, the result of letting the rams run with them from washing to shearing time.

"When we began feeding for the winter, we fixed a place in one of the stables so the lambs could enter and the ewes could not, and sprinkled some bran and salt in the trough. Very soon the lambs learned to go there and in a short time they would run for their pen to get their rations, as greedy as a litter of pigs for a mess of milk. We fed them liberally through the winter and they came out in the spring in fine condition. Encouraged by their nice appearance we turned the ram with our ewes again on the 9th of May, and will try our luck again with fall lambs. At washing time this spring we washed the lambs, thinking we would shear one or two; and if thought profitable would shear the whole lot. The first one sheared clipped a fleece that weighed exactly five pounds. Encouraged by this we sheared the other twelve and from the lot got fifty-four pounds of wool, which we sold, along with other wool, at the same price.

"Some of the advantages, we think, from raising fall lambs, would be the great demand as early lambs for the butcher. The lambs to eat so soon do not rely on milk so much for their support, thus relieving the dams from such a drain on their system, and coming through the winter in good condition, go on grass without checking their growth, as is very often the case with spring lambs when weaned and turned on dry feed, as must necessarily be done in that season of the year; besides, their wool will more than pay for what they consume through the winter, as I am satisfied was true in my case.

"The ewes came through the winter in fine condition, and when I weaned the lambs they were in much better condition than I ever had ewes when the lambs were weaned

in the fall, and sheared an average of 7 11-25 pounds per fleece. A lot of 32 yearlings, wintered with ewes, clipped an average of 9 3-16 pounds per head, all nicely washed wool, and all sold at market prices. I would say to those who are prepared to properly care for fall lambs, to give it a trial. My sheep are high grade Merinos."

Feeding Hogs.

What is necessary for successful feeding? In summer, an abundant supply of water to drink and wallow in with abundant shade near by, and clover or other pastures to run in. In winter, a good dry place to sleep in, moderately warm, and a floor to eat on; it may be made of large stones laid flat, or small stones put in like street paving, or of plank. If made of stones it should be slanting, so it may more easily be kept clean; if made of plank it should be nearly level, otherwise the hogs will slip and strain themselves. Plenty of water from a well, cistern, or spring that does not freeze. The sleeping, eating and drinking places should be near together.

TIME OF FEEDING.—The time to feed being governed by a variety of circumstances, each feeder can determine best for himself; yet we may state a few facts that may help him to decide. In a great majority of years the price of pork is lower in November and December than any other part of the year; likewise in a large majority of years it is higher in January and February than at any other period. March is very variable; frequently it is a high month. August and September are usually the next highest months. He that commences to feed early in September will necessarily run into what is usually a low market, comparatively, yet in spite of this the average farmer who is not prepared, and will not prepare himself, for summer or winter feeding, had better stick to his early feeding.

The fall months are the best part of the year to feed in. The corn is in the best condition. More pounds to the bushel, with less labor, can be made in the fall than any other part of the year. There is less liability to cholera, not only on account of the shorter time the hog is exposed, but a stock hog is much more likely to take cholera than one that is being nicely fed. The farmer that is prepared or will prepare for summer or winter feeding, can feed successfully for those periods when the prices are usually the highest, and make it more profitable than fall feeding, but if not prepared, we say emphatically, let him stick to the fall feeding. Feed from sixty to ninety days in summer, and from eighty to one hundred and ten in winter. Also, if stock is good and other things favorable, always feed till your hogs will sell in the highest grade, and when they have reached that point, sell, unless there are extra good reasons for continuing to feed, no matter whether they have been fed fifty or one hundred days. Always bear in mind that, other things being equal, a short feed gives more pork to the bushel than a long feed.

How to FEED.—Good feeders differ as to whether it is best to feed twice or three times a day. After several years' trial both ways, we decidedly prefer twice. In summer, feed in morning, sun one to two hours high; at night one hour before sundown, or if very warm, not till near sundown, thus leaving the morning while it is cool and the dew on, for the hogs to pick grass, and the heat of the day for them to sleep or bathe, as they choose, unmolested. In winter, sun half hour to one hour high; at night, an hour before sundown. Hogs in winter should always be fed in time to eat and drink, ready to lie down by dusk for the night.

Water should be in good supply throughout the day, but especially give an abundant supply just at night. A hog will nearly

always wind up his supper with a drink; if not allowed this he will not do well. At all seasons give plenty of salt and ashes, about one of salt to three of ashes. When they cease to get grass a feed of slop made of shorts, or shorts and bran—the more milk and soapsuds in it the better—once or twice a week is very beneficial, and is more necessary after hogs have been feeding a good while; if not convenient to feed it thin so they can drink it, make it thick and put it in piles on the floor; it is a good deal less trouble and quite as good. Never keep corn constantly before your hogs, but make them eat all up at least once a day. It pays to handle all the corn by hand, picking out all unsound corn for the stock hogs or cows.

HOW MUCH PORK WILL A BUSHLB OF CORN MAKE?—On this point we hope to put the young farmer on his guard, rather than to give any new light. L. N. B. gives the average of experiments at 10 1/2 lbs, but nearly all these experiments were made on from one to six hogs, and consequently not reliable for large lots—from twenty-five to one hundred—as it is much easier to succeed with two than with one hundred. We have fully satisfied ourselves by experiments that good stock, well cared for, on a short feed will make 10 lbs. to the bushel in large lots, but we are quite as well satisfied that the great majority of hogs fed make from 1 to 3 lbs. less than that. Out of this has come the rule claimed by some feeders that they can buy at 7 cts. and sell at 7 cts. and make 70 cts. for their corn, or buy at 5 cts. and sell at 5 cts. and make 50 cts. for corn. This rule, if followed, will certainly result in loss, for it makes no allowance for shrinkage, for marketing, for sick or lame hogs, or poor feeders, etc. In every considerable lot there will be drawbacks of this kind which will make quite a per cent. of loss, which must be made up out of the hogs that do well. Old hogs, good stock that have been summered on clover, without corn, if then fed and allowed plenty of clover, will make 12 to 14 lbs. to the bushel for a short feed.—*Cor. Ohio Farmer.*

Breeds of Hogs for the South.

Mr. Richard Peters, of Georgia, in response to inquiries as to the best breed of hogs for the South, says that the Berkshire, as improved, appears to be well adapted to the wants of the Southern people. The hams of these hogs are, beyond doubt, superior to those of any other breed, and the animals fatten readily at any age. They are, however, inclined to become wild if allowed to run in the swamps and are not called up and fed regularly. At eighteen to twenty months old they will yield, with fair treatment, from 250 to 300 pounds of net pork. The sows are good breeders and good nurses.

Of the Jersey Reds—a larger breed than the Berkshires—Mr. Peters' experience is that they require to be kept on high feed and to be permitted to run until two or two and a half years old, before slaughtering. They will then weigh from 400 to 500 pounds. They are a lop-eared breed, and do not vary in color except in the shades of red. Young pigs have small black spots on the skin, which do not show as they grow older. They are prolific breeders, old sows bringing from ten to fifteen pigs at a litter, and when well fed they yield more milk than sows of any other breed; the cross between them and the Berkshire, using the Berkshire boar, makes, in Mr. Peters' opinion, a most valuable hog for all practical purposes.

"The Essex, beyond all questions," says Mr. Peters, "can be kept at less cost than any other breed. They originated in England by a cross between the Neapolitan and the Chinese, and to them the Berkshires owe their great improvement; the blood of the Essex having been freely used by English breeders of Berkshires. They require some

skill in their management, for when highly fed, the sows become too fat to breed, though if allowed to run on grass they bring average litters and make good nurses."

Mr. Peters, who had tried all the breeds enumerated and many others, keeps now only the Essex and a few of the Jersey Reds. He allows the sows to breed but once a year, dropping their pigs in April. The sows run on grass and clover, and are fed about two ears of corn a day, or slops made at the house with shorts. This provides for them until the grain-fields are open, and they all run together on these fields until the fall. Such as are designed for store pigs are separated and given a run in the woods on the free mast. They are fed about one ear of corn each in two days during the winter. The following year they again have the run of the grain-fields and then of the pea-fields, and after having fed on corn for two weeks, make nice meat for family use at very little outlay. All of the sows except those intended for breeders are spayed; the others are allowed to run with young boars and breed early. The first litter of young sows are invariably killed as soon as dropped. They bring their second litters from a selected stock of boars when they are thirteen or fourteen months old. The brood sows are fattened and killed after bringing their third or fourth litters.

The Dairy.

The Profitable Dairy Herd.

In getting together a herd for the dairy, the aim in the start should be to secure good milkers, whether by purchase or breeding. Some cows lack in richness of milk; the butter made of some milk is white and frothy, or otherwise objectionable. None of this is wanted, as it is sure to tell in the general make; quality in particular must not be impaired. In order to ascertain the condition of the milk, each cow should be tested, and where found lacking the animal should be discarded. This is very little trouble, and, once done, will do for the lifetime of the herd, which may be extended fifteen years with undiminished usefulness. To keep in the herd during this time several cows of a low standard of milk is a constant drain upon the profit, if not an absolute loss. The importance, then, of beginning with a good herd is apparent.

Perhaps the best can be obtained by raising one's own stock. This requires time and, to some extent, also weeding. There is no lack of good milking strains, and eventually all dairy herds will be made up of such stock. The readiest way to secure a herd is by purchase, selecting as far as may be. But there is some uncertainty in selecting strange animals. It is different where a herd is made up of cows known in the neighborhood. In either case, as in all cases, weeding becomes necessary. In testing cows, especially those that are purchased, as to quantity of milk, haste in deciding must be avoided. Generally such cows are not supposed to have had the best of treatment; the contrary is usually the case; and this is the purchaser's advantage, as such animals are capable of improvement, and to a far greater extent than is usually supposed. Herein lies the advantage of purchasing, especially the native cow, which has a large share of undeveloped capacity. Besides this stock can be bought at a reduced price. When animals of the common breed are secured, the test to be made should cover at least two years, and it sometimes takes longer to develop the full capacity of the animal, depending upon the treatment given. Hence a cow that shows a good quality of milk should not be hastily discarded if the quantity fails to meet expectation at first.

I have said that this improvement is dependent upon treatment; mere feed, how-

ever good, will not do it, though it may help; comfortable quarters in winter will not secure it, though this also is an aid. More than these, the cow must be quiet, contented, a home feeling encouraged. She has a strong domestic affection, and this is allied to the maternal, including the lacteal, which is thus reached and excited to action by kind treatment. Whether this reasoning is correct or not, it is certain that kindness has its influence at the milk-pail, just as abuse and the dread of master-cows have the contrary effect. A single day's exposure to a cold storm will reduce the milk about half. If to good treatment are added clean, well-ventilated stables, occasional carding, water always convenient, avoiding over-feeding with rich food on the one hand, and the worry from the want of food or regular feeding on the other—in a word, studying how to add to the comfort of the herd, treating each animal as if one were kept—if this is carried out, a great advance will be made upon the usual income of the dairy, and I have known this income to be more than doubled.

This treatment also favors the health and extends the life and usefulness of the animal, so that a cow fifteen or sixteen years old will, with the food adapted to her age, be as good as ever, and continue to be profitable a few years more. She thus becomes an animal of much greater value than we usually find her. We find her most where but a single cow is kept, or but a few, or now and then a herd, if pains are taken to remove vicious members, and room enough is allowed to avoid crowding, making the herd a happy, contented family at the barn.

As to feed, it is acknowledged that grass at its best stands first in summer, and hay (a large proportion clover, cut when green and tender, and well cured,) as a general feed in winter, to be supplemented if need be by meal or roots, adding for variety pumpkins, corn-stalks and whatever else may stimulate appetite. It is with dairying as with any other department of the farm. If it is properly conducted, it will pay; if neglected, there will be loss. It can be made one of the most profitable branches of farming, not only in its immediate income, but in its effect upon the land (in growing sod) and in the manure made.—*F. G. in Country Gentleman.*

Feeding Dairy Cows.

What is full feeding, and what is profitable feeding? This is of the greatest importance for every dairyman and farmer to know. Although it is not a thing that can be told with precision, but one to be learned in practice, the following experience of a dairyman in *The Dairy* will be suggestive to every one who feeds cows, whether for milk, butter or cheese.

In 1879 I was selling milk, and during that year I found the following results from the feeding: Eighty pounds of green fodder, or twenty pounds of hay, worth ten cents, gave seven quarts of milk, worth twenty-eight cents; sixty pounds of green fodder, or fifty pounds of hay, worth seven and one-half cents, and nine pounds or ten quarts of mixed corn meal, bran and cotton seed meal, worth fourteen cents, total twenty one and one-half cents, gave eleven quarts of milk, worth forty-four cents, so that eleven and one-half cents of extra food gave sixteen cents' worth of milk. But I got part of the cost of the feed back in the greater value of the manure. Then I found I was losing money, because the rich feeding increased the cream in greater proportion than it did the milk, for while on the fodder alone the cream was 15 per cent., on the feed it was 25 per cent. Since then I have been making butter, and I have found the following results:

Fodder or hay, worth ten cents, gave three fourths pound of butter, worth thirty cents; fodder and feed worth twenty-one and one-half cents, gave one and one-half

pounds of butter, worth sixty cents. Then eleven and one-half cents' worth of extra feed returned thirty cents in butter, and in addition added something to the value of the butter.

Increasing the feed to twelve pounds a day gave me no more butter, but a little less milk and the trouble of an attack of garget with one of my cows. I never dare go further in that respect, although one cow on that feeding gave twelve and one-half pounds of butter in a week, and would I feel sure, have gone over fourteen pounds in the week, but I was not in the testing business, and was making butter for a profit. Less feed than the nine pounds, three quarts, or three pounds at a feeding, did not pay as well as the full feeding, and from that I have reached this rule, viz.: Full feeding gives more profit than partial feeding. By 'full feeding' I mean the full, ascertained limit of what an animal will consume, with profit, for the largest product. And in the dairy I have some cows that will take a little more, and some must have a little less than the average ration. This is made up by cutting the hay or fodder, green or dry, into a large box, wetting it and sprinkling the meal over it, mixing it, and then dividing it with a bushel basket, this being the standard feed, some cows getting a little more and some a little less, as I know they require, for the best results as to yield and thrif. My cows are all kept in good, sleek condition.

Raising Calves for Dairy Cows.

There are other considerations in calving quite as essential as the cost of feeding in early life which do not seem to attract quite so much attention. One of these considerations is the adaptability of the habits and condition of the young animal for developing it in a way to best fulfill the purposes for which it is to be raised. Whatever the purpose for which a calf is to be raised it is essential that it should be so well supplied with wholesome nutritious food of some kind as to keep it growing thrifly, and this is as true of other young animals as of calves. If a calf is designed for a working animal it should have a selection of food adapted to the support and development of bone and muscle, and be induced to exercise enough to promote their growth and use. If it is to be a breeding animal, the highest degree of health and vigor should be studied and cultivated. If beef is the object, then rich and liberal rations with good care would contribute most effectually towards inducing a tendency to lay on flesh and fat, and to stimulate an increased power of digestion. Except the feed and treatment designed to stimulate a tendency to lay on fat and flesh, all that would best contribute to the welfare of calves designed for working and breeding animals, or for beef, would be appropriate for calves which are to be raised for cows. For making the best cows, large, strong, vigorous and healthy animals are required. Diminutive, weakly and feeble animals are as unprofitable as they are undesirable for cows. They are unable to utilize food to the best advantage from a lack of ability to digest large rations. In raising calves for cows every possible effort should be made for developing powerful digestive organs. A cow is nothing without good digestion, since her milk is chiefly measured by the quantity of food she can digest above what is required to sustain her body. An animal with an inferior stomach is a failure every way. She does not only fail in being able to digest a quantity large enough to elaborate a paying yield of milk from, but such animals seldom digest what little they do eat as exhaustively as larger and stronger animals do.—*Nat. Live-Stock Journal.*

ONE cow may be kept on an acre, by growing soilings crops, feeding in yards, and carefully saving and applying all manure made.

Poultry Yard.

Seasonable Receipts.

[From the Poultry Monthly.]

GREEN FOOD.—In this month the poultier should lay up a store of green food for his fowls for winter use. Potatoes, cabbage, turnips, carrots, etc., can be bought cheap from farmers, who are often glad to sell the inferior vegetables and roots at low prices. Economy in this, as well as in other things pertaining to the management of poultry, is what pays, and the one who takes advantage of the low prices of grain and other kinds of food necessary for his stock is wisely managing his business.

To some it may seem unnecessary to store green food for fowls, but when we think of the hardship and exposure they endure for four or five months of winter, and just after passing through the ordeal of moulting, our pity, if nothing more, should rise up and reprove us for neglecting them. Many flocks have to subsist almost entirely upon grain food in one shape or another during the whole season of cold weather. That this is an injudicious course of feeding the poultier will soon learn if he continues it. Green food daily of some kind, and plenty of it, must be allowed our fowl stock. It is healthy and a needed provision that cannot be dispensed with. If poultry breeders would believe how valuable and succulent vegetables are when cooked, either boiled or steamed, and mixed with meal and given to the fowls while warm, this excellent style of feeding cabbage and roots would be far more generally practiced. To be healthy, fowls need coarse food with grain to aid digestion and assimilation. Grain alone, be it ever so good, does not furnish all the elements needed to keep up vigor, fertility and good health.

BUILDING POULTRY HOUSES.—We say to those who are commencing the poultry business for pleasure or profit to build their henries not so much for present purposes, but with ideas for future use, as you may increase your stock by and by, and what you have done may necessarily be changed some other time or remodeled to suit the requirements of their keeping. It matters little as to the style of the fowl house, if you combine warmth, light and ventilation. These are absolutely necessary in every fowl house, whether elaborately built or rudely constructed. Of course it is understood it must be free from dampness. Your own good sense will point out the most elevated place for the site, but if there is no choice or advantage to be gained, raise the earth of the hen house a foot or eighteen inches above the outside ground. See to the drainage of your houses and yards. Fowls must be kept from deleterious effects of dampness in their roosting places, or else roup may become an unwelcome visitor.

PREPARED FOR WINTER.—Among the other indispensable duties is that of looking to the cleaning of the pens and roosts before the windows, doors and woodwork are fitted up and made snug for the fowls before cold weather sets in. Whitewash the walls, nest boxes, roosts and feed troughs thoroughly. Don't spare brush nor whitewash; thrust it into the cracks and crevices, and give no quarter to the enemy, though they show the "white feather" or "beg for truce." The whitewash should be put on hot, and if an ounce of carbolic acid be added to a pailful it will make it more effective. It is not a hard task to whitewash, where there is a will. All one has to do is to draw on a pair of overalls, roll up his sleeves and go to work. He need not be particular how it may splash, if it only penetrates and purifies every place where a vagrant parasite or louse might take refuge. There is really no limit to the whitewashing process.

Don't forget a supply of ground bone, oyster shells, etc., for your fowls at all times.

Table Fowls.

It is an admitted fact that the majority of the American people indulge too freely in pork as a meat food. And it is equally true that the major number of farmers and market poulterers are very indifferent as to the quality of poultry flesh they send to market. One class of our people see nothing tempting in the poultry line to induce them to become lovers of chicken flesh, and they do not endeavor to produce a fowl that will be universally considered excellent for the table.

If we take any of the fancy bred varieties of poultry, there is hardly one except the Game, which is what may be considered a first class table fowl. The Dorking though having a national reputation, is almost tabooed from the poulterer's yard on account of being tender and difficult to rear in this country. The Asiatic, as now bred, carries enormous quantities of feathers, while their breasts are almost devoid of flesh, and present little more than a heap of bones when placed on the table, while their skins are terribly coarse.

The Plymouth Rock has been bred in the past few years above the natural size. This alone, if no other, would detract from the quality of his flesh. The Houdan is fast being changed by those who breed them for exhibition, into an ornamental fowl. The Crevecouer is also becoming a bird of plumage, and is difficult to raise. The Spanish will never answer for a table fowl, as they are utterly useless for the rough wear and tear of the farm yard. The Hamburgs, Leghorns, and Polish are too small for the food market, and do not take on fat kindly. Farmers could not be induced to breed them but for their eggs only. We are therefore compelled to arrive at the conclusion that among the many varieties of poultry, we have not yet succeeded in breeding one which may be considered a prime table fowl.

—*Poultry Journal.*

Roosts.

The instinct of self-preservation prompts fowls to perch on the highest point they can attain when seeking the quarters at night. This is done because they naturally desire to be far above the reach of danger from below, and they go under shelter to avoid the enemies that fly in the air. This instinct of the fowl is well known, and yet a large majority of breeders construct their roosts in such a manner as to have the rear cross piece higher than the next, and so continuing until the first one is quite low. If any one will take a look into the quarters at night, after the fowls have retired, it will be seen that no matter how much room there may be on the roosts, a portion of the lower space will be unoccupied, while the higher poles will be crowded, the fowls being as compactly pressed together as though the packing process had been purposely done to get them all as high as possible.

There are several objections to such roosts, not only so far as the discomfort of the fowls is concerned, but because they are unsightly, unhandy and filthy. The gridiron roosts, with its low and high perches, is an obstacle in the way of cleaning the coop. It takes up unnecessary space, and it compels the heavy fowls to jump higher, at the risk of knocking over the small ones, and an occasional fall is the consequence when coming off. Not only are the feet injured, but bruises and jars to the body are also the result.

Perches should all be on the level with each other, and should be made easily removable. By so doing the fowls will not crowd each other, and the perches can be cleaned and washed with coal oil occasionally. No injury from getting on or off will occur, and no conflict for preference of position will take place, to say nothing of superior ventilation, facility of removal of droppings, access of the attendant, and beauty of arrangement.—*Farm and Garden.*

The Aplary.**Preparations for Wintering Bees.**

In order to winter safely, preparations therefor should not be too long delayed, as by so doing some of the many little essentials may be left out. I have never wintered save on summer stands, therefore know nothing of any other method; but as I have been uniformly successful in so doing, I have no reason for making any change. The hints which follow, while applicable to my plan of wintering, may not meet with approbation from those who use a special depository; still as I have lost but two colonies in sixteen years, I feel perfect confidence that I am not far wrong, and honestly recommend my plan, feeling assured that whoever follows it in detail, will meet with little, if any, loss.

One of the essential requisites for safe wintering is to have the stores so placed in the combs, that the bees can get at them easily at all times, no matter how cold it may be. It is perhaps superfluous to state, that all colonies form in a compact cluster at the approach of cold weather, but it may be of interest to some to know that a very large colony will compress themselves into a cluster of about seven inches or less in diameter. This fact being known, and it also being known that all the heat contained in the hive is generated by this cluster, it is easy to imagine what form and size of frame and brood chamber is needed, in order to economize the heat to the best advantage, and at the same time contain sufficient stores necessary for the winter's sustenance.

I use the standard Langstroth frame, and consider that the correct form to use, and the brood chamber, when contracted by closely fitting boards, so as to accommodate seven of these frames, I consider the correct size. At any rate, I have met with complete success in this way, and propose to follow it till I learn a better. I find no fault with other frames, and only "speak well of a bridge that carries me safely over." The stores, in order to be placed in the frames that they can be best utilized, should occupy the half thereof; then if a space of just about one inch is left between the tops of the frames, and the covering mat, for the bees to use in getting from one frame to another, and the cluster when the bees are packed for winter, is made to occupy one side of the hive, (which can easily be done by changing the frames if they do not so occupy them of their own sweet will,) my opinion is that we have done all in our power to make a success in wintering. There is no trouble at all in getting the stores placed in the upper half of the frames, for by the use of the extractor, if they are too full, or by feeding if they do not contain sufficient, this can easily be accomplished, if one only begins in season so to do; and for this reason, and to get the stores so placed, I consider it of importance that preparations should be begun earlier than they usually are.

My method of preparation is very simple, (and simplicity I find the best and safest in all matters connected with bee culture,) and is as follows:

I put up my colonies on seven Langstroth frames, with a two-inch closely fitting Chaff division board in each side the hive. I use "Hill's Device," (so called) over the frames, but the space above can be made by using little pieces of fine deal, just as effectually, though not as handy. I cover the frames with a burlap mat or porous blanket of any material, and then fill the upper story with forest leaves or chaff pressed loosely down.

I do not advise a chaff cushion, for it is apt to be made too compact, and I want all moisture to be carried off through the covering material, without involving any loss of heat, and I find that forest leaves accomplish this better than anything else I have used.

I bore one and one-half inch holes in each end of the cover, and find this amply sufficient for the purpose of ventilation.

The entrance I contract to about six inches for the strongest stock, and more still in proportion to strength. My aim is to keep the queen laying as long as I can stimulate her, by daily feeding of a small quantity of diluted honey, or thin sugar syrup, so to do, as I desire to have as many young bees as I possibly can rear in the hive, they being better able to stand the long confinement, which an unusually severe winter delayed spring will entail.

My preference is a double walled hive, with a dead air space, one inch thick between the walls, as such a hive, I imagine, will better protect its little occupants from cold winds and sudden changes; still I have found my bees to winter well in single walled hives, when protected by the chaff division boards. The stores should be capped when the bees are finely packed, and if any of the frames of comb contain a considerable amount of pollen in the outer sides of the hive, so that they may be used early in the winter, and be ready for use again in the ensuing spring.

I am not yet clear in my mind as to pollen being such a cause of dysentery (so called,) that we need apprehend any trouble from it, still it is a mooted question, so by placing it on the outside frames we avoid possible chance of trouble in that direction.

By using the above plan of operation for winter, I have met with uniform success and can heartily recommend it to all. I do not say there is no better, but it suits me to a T.—*Bee and Poultry Magazine.*

Horticulture.**Strawberry Notes.****Meers. Editors American Farmer:**

To the grower of small fruits who attempts to keep up with the times, nothing contains so much interest as watching the growth and development of the new candidates for public favor. I have accustomed myself not to look for too much in any new variety, however lauded and recommended by interested parties; yet I am reminded that nearly all the valuable fruits of to-day recently produced, and but for their being pushed upon the notice of the public, might have forever remained in obscurity. The pernicious practice of some nurserymen of getting up an excitement over new and untried varieties annually, reminds one of stock gambling. I have had an opportunity the past season of judging of the value of some of the novelties fruited on my own place. The one I was most anxious to see fruit was the Manchester. I somehow had imbibed a prejudice against this berry at the time it was first brought to notice, but this was speedily dispelled upon seeing it in bearing. It was put to the severest test; being upon unmanured, poor, sandy soil. Notwithstanding it gave a heavy crop of uniformly large bright berries, scarlet in color, and of a shape similar to Cumberland Triumph; it is certainly firm and cannot help carrying well. I kept a number of the berries in a cool room four days, upon which they showed but little signs of decay and had lost but little of their bright color. The Mt. Vernon kept alongside of it at the expiration of that time was mouldy and quite soft, settling in my mind the value of the latter as a shipping sort.

Mt. Vernon produced an enormous crop of large soft berries ripening late and giving a good picking after all others were gone. They need good land, and manure, to come to perfection. The berries are handsome, medium flavored and bright crimson in color. It will no doubt prove valuable near market. And now comes "Big Bob." What shall we say of it? We have christened it *Big Fraud*, as the berries upon my plants from the introducer himself were so small that I could hardly find them. Mr. Purdy says he was deceived in most of the plants procured from the originator and sent them by mistake, &c. But

we will pass on to other varieties. Satin Gloss produced quite a fine crop of small berries strongly similar to its parent, the Lady-finger, in color, shape and flavor. Longfellow is rightly named, some specimens being nearly three inches in length, dark in color, firm, productive, and medium in flavor; needs heavy soil. Queen of the West is the Monarch of the West in a new dress, a slight improvement on her liege lord. Bidwell set and matured a heavy crop of large extra early berries, firm, of fine color and shape, and having but one visible fault—the cap dries up as soon as ripe, giving it a naked appearance; needs heavy land and runners kept off, thus treated makes immense stools.

Jersey Queen promised well on young spring-set plants. A neighbor who fruited it, gives it the first place among large late berries. Finch's Prolific seems to lack vigor; no fruit on young plants. James Vick gave plenty of medium sized berries, firm, bright and a good shape and fair quality. Hope to be able to report more fully upon those last named another year.

R. S. C.

The Japanese Maples.

Mr. W. C. Barry, in a paper before the American Association of Nurserymen, Florists and Seedsmen, said:

"The Japanese species and varieties, which, after having been tried for some time in various soils and localities, have, so far as I can learn, proven nearly hardy. It affords me much pleasure to furnish favorable evidence relative to this important qualification, for when these maples were sent out a few years ago, many persons, myself included, doubted their value for out of door decoration, supposing them to be too tender to resist successfully the severity of our winters. However, being greatly interested in them on account of their extraordinary beauty, we imported fine plants of the choicest varieties direct from Japan, gave them a fair trial, and now have large specimens doing finely upon our lawns at Rochester, where they have stood out unprotected the last three winters. Our experience is that young plants, until they become well established, are liable to suffer injury from extreme cold. Hence spring planting is recommended for them, thus affording the plants a chance to become well rooted before the approach of cold weather. Protection with evergreen boughs the first winter is also suggested, and judicious pruning is attended with most satisfactory results. In the spring, just before the buds start to grow, every tree should be carefully examined, and the dead wood, of which there is always sure to be some, removed. If the specimens do not grow vigorously enough give them more nourishment, and cut them back severely. These are simple hints regarding their treatment, but nevertheless important, and if the suggestions are carried out, success can be recorded in the future where failure has been experienced in the past. The best varieties for general use are as follows: The normal form or type polymorphum is a tree of small stature, medium growth, and regular outline, having rather slender branches, and small, handsome foliage of pleasing green color during the summer but turning to a rich crimson in the autumn. This species is, I think, destined to become very popular. The variety sanguineum, is a dwarf tree, having rich red foliage, which holds its bright color till the middle of summer. During the months of June and July a specimen is a very conspicuous and attractive object upon the lawn. Atropurpureum is another variety of moderate growth, having purple leaves, and when planted with the above produces an effective contrast. Atropurpureum dissectum, has slender branches, which show a strong tendency to droop, and its leaves are delicately cut, resembling fern leaves, and of a beautiful purple shade. Japonicum is another very distinct species of medium growth

with large, handsome, bright green leaves, the edges of which are scalloped. It grows more vigorously than polymorphum and its varieties, and bears some resemblance to the Red Colchicum Maple. There are several other varieties and forms, but these are the most beautiful and useful. Now a suggestion with regard to the manner of planting. As these trees are what are termed slow growers, it takes some time for them to become effective. Hence, we advise the planter to arrange them in groups consisting of three or six plants. A very satisfactory effect will thus be quickly realized, and every year the group will become more elegant and attractive. For several years the propagation of these Maples has been conducted on a very limited scale, owing to the difficulty of procuring stocks to graft upon, and the price of plants has consequently been quite high. These obstacles having been removed we may hope soon to obtain these beautiful dwarf trees at a moderate cost."

Remedies for Insect Depredations.

Dr. Sturtevant, in the 63d bulletin of the N. Y. Agricultural Experiment Station, says: One of the greatest boons to gardening would be the discovery of efficient methods for the destruction of insects, as well as remedies which are easily to be procured and of easy application. This, however, is a difficult matter to accomplish, and upon a view of the season's work they recognize but little absolute success.

The cabbage worms have been abundant and destructive. We have warred against them with tobacco-water, saltpetre, alcohol, boracic acid, bisulphide of carbon, etc., in various combinations, but we finally settled upon an emulsion of kerosene oil and soap-suds as the remedy that, all things considered, was the most satisfactory. It appears that one ounce of common yellow, hard soap, one pint of kerosene oil, and one and one-half gallons of water, well mixed and stirred, and applied by means of a rose from a watering-pot destroys all worms that become thoroughly wet with the mixture, and does not injure the plant. Care must, however, be taken to keep the ingredients thoroughly mixed in the pot, for if the oil is permitted to rise to the surface, so that it will pass out upon a few plants, it will prove fatal to the few, while the remainder will not receive enough of the oil to destroy the worms. In this case the kerosene is the insecticide, the object of the soap being but to thicken the liquid so as to retard, in a measure, the separation of the oil from the water. A larger proportion of soap makes the water so thick that it will not flow readily through the fine openings of the rose. A larger proportion of oil endangers the plant, while a smaller proportion is inefficient against the worms. There is one caution, however, to be given: If repeated applications of the mixture are made upon the same plants, the more tender varieties will be destroyed or will be injured. We found, on trial, that where one or two applications were made without injury to the plant, a large number of applications blighted the leaves, more or less, and five applications entirely destroyed the early varieties, while large growing and late varieties seemed uninjured even under severe dosing. The growing cabbage furnishes so many hiding places for worms that we can not hope to destroy them all with a single application, however thoroughly it may be made. The perfect remedy should destroy the worms wherever it touches them, and should not injure the plant in the least under any number of applications.

During the strawberry season we noticed that a decaying strawberry had a great attraction for the wire worm. We frequently found as many as twenty of these worms beneath a single over-ripe or decaying fruit. This suggested that it might be possible to

entrap the wire-worm by placing some sweet substance about plants that are troubled by it. Accordingly, on June 25th we placed small lumps of a mixture of molasses and wheat flour about the plants of Sweet William in the flower garden, which, from the early spring, had been the favorite haunts of the wire-worm. On June 29th an examination showed that our trap was a success, and we counted thirty-five worms under a lump of the mixture, the size of a silver dollar. We next collected a large number of the worms and placed them with a small quantity of soil on an earthen seed-pan, and placed on the soil a lump of the same mixture, with a little Paris green added. The mixture attracted the worms as before, but, to our surprise, it did not kill them. We confined them for a week in the pen, but did not see that they diminished in numbers.

One part of Paris green mixed with 200 parts of ground limestone proved entirely successful against the larvae of the potato beetle. Great care is, however, required to secure a thorough admixture of the two substances where so small a proportion of the poison is used. In this dilution Paris green seems to lose its danger to the human family, as we can scarcely imagine injurious results coming from its use, to the careful man.

Bisulphide of carbon applied to the soil about the roots of squashes for destroying the squash borer, *Aegeria cucurbita*, had no visible effect in diminishing their ravages. Paris green, mixed with water, at the rate of 1 part of the former to 600 of the latter, by weight, and carefully applied to the stems of squash plants, seemed to be of benefit. We commenced using it about August 20th, taking great care to first remove every borer from the stems. We have since found but few borers in the plants treated with it, although the plants were of those varieties very subject to their attacks. A careful examination made September 5th, discovered but two borers in eight plants, while other plants in the same row, to which no application had been made, contained from one to three borers each. The Paris green and water was applied in this case with a watering-pot having a small rose with the apertures facing downwards. The stems were wet for a distance of about two feet from the base of the plants.

We have also made another experiment upon the squash borer, which seems to promise valuable results. This is the application of a solution of a sulphate of iron about the roots. We used this solution upon five vines about August 23d. The first plant treated was of the Hubbard variety, and four were of the Essex Hybrid. All these vines had been infested by borers, and at the time the application was made four of them were almost destroyed by them. The borers were very carefully removed by splitting the stem lengthwise to the center and picking out the animal with a pair of tweezers. The solution was then poured about the roots of the plant, sprinkling it upon a circle about four feet in diameter, taking great care not to allow any to touch the leaves. In these plants we have found no borers since the application was made. The vines quickly assumed a deep green color and are still growing vigorously. The proportion used was one-fourth pound copperas dissolved in a gallon of water, and a gallon of the solution was used for each plant.

We do not deem these experiments with the squash borer as in any sense conclusive. We hope to make careful verifications of them the coming season. We offer these results of limited trials, hoping that persons interested in the culture of squashes might aid us by practical trial.

THE application of lime water will destroy worms in flower pots.

Storing Sweet Potatoes.

The most common and most successful way of storing away sweet potatoes for keeping in this latitude is to put up in dust. There are other modes which have their advocates.

In the summer when the dust is very dry I take as many barrels or boxes as I shall want to fill with potatoes and fill them with road dust and put them away in a dry place to keep until I dig my potatoes. I prefer digging before frost. I dig them and let them dry in the sun a day; then they are stored away in a cool place; they are spread singly over the floor so as not to heat nor sweat; when cold weather sets in they are taken and stored in the cellar: cover the bottom of the barrel or box with about three inches of dust, then a layer of potatoes close as they can be not to touch them; cover them with dust, then potatoes, and so on, until the barrel or box is nearly full; then fill up with dust.

In this way potatoes will keep through most any winter. I find this the best way to keep sweet potatoes over winter. Another way I have tried with much success is to pile the potatoes in a large cone shaped pile. Thirty to forty bushels keep better than less. Then take straw in small handfuls and pack around, commencing at the bottom, building it firm, eight or ten inches thick, until near the top, then insert a flue near the top and build tight around the flue. In a few days the potatoes will begin to sweat and emit a steam; after they go through the heat and cold weather sets in, this flue can be stopped with straw. Now this straw is covered with dirt thick enough to suit the weather. I have very good success with potatoes in this way, but prefer putting up in dust. When I put up with straw I put up in the garden, putting a shelter over them.

—Cor. Farm and Garden.

The Grange.

National Lecturer's Communication.

SUBJECT FOR SUBORDINATE GRANGES FOR OCTOBER.

Question—Co-operation, its rise and power. How can we apply it to best advantage?

Suggestions—Co-operation in its comprehensive sense has a wide range. It is not confined to special objects or locations. It is applicable in all efforts where force of numbers are required.

Its use rests in consolidation of numbers; it has no force to be used single-handed by individual efforts.

Co-operation requiring united action, shows clearly and conclusively the importance and necessity of consolidating numbers into organization, they then become one power for operation. By organization and co-operation we unite in a measure the intellect and influence of individuals, which then becomes a power of ten-fold greater strength than if exerted even side by side in the same direction by a like number in an individual capacity. The first important step toward co-operation is thorough organization. Collect the farmers and their families in a community into the Grange, this gives strength from numbers. Then by educating how to correctly apply this power in a co-operative way, will lead to success in any legitimate effort undertaken.

Co-operation means the united and combined efforts and influence of all the operators in the same work, for the same purpose, in the same way, and at the same time. This develops the strength of co-operative effort, and when intelligently directed its rise and power will always accomplish the results desired, whether in social culture, in education, or business enterprises. Organization, education and co-operation among farmers should be the mission of every member. We should work co-operatively in every community until every farmer is enlisted.

Home Department.

Our Patron Saint.

She walks the daily rounds with me,
—This Mrs. STRICT ECONOMY.
All moves at her command,
From garret-roof to cellar-floor,
There's not a cranny we explore,
But owns her potent hand.

Then garden, orchard, pasture field,
Hen-houses, dairy, all they yield—
Like sentinel on beat,
She treads through all my nights and days,
And hedges in my devious ways,
With her wise-walking feet.

My queen of parlor, maid of work,
Keeper of keys, my chief of clerk,
She fairly keeps my breath—
Purveyor—purser—claims the right
To grip my purse-strings so tight,
It's almost squeezed to death.

As 't o my wardrobe, I declare
She tries on every dress I wear—
I'm gored perpetually,
To see if it is "good, cheap stuff,"
And if the cut is skimp enough,
To fit my purse and me.

So tight the fit! it strains my strength—
Each dime stretched out to dollar's length,
Each dollar counts a score,
Until "O, if!" I cry sometimes,
"My means but equalled my extremes,
How rich then, to be sure!"

The very mice by squeals protest
Against the smallness of the waste—
(Old Hudibras hints that!)
But here, indeed, all are acquaint
With this, our family's Patron Saint,
Down to the mouse and cat.

Yet....One exception I do claim
From this ubiquitous old dame,
One interdicted place,
I mean, in short, THE FAMILY BOARD,
When all her labors are secured,
She must not show her face.

I do not want her winks and nods,
About our pantry ends and odds,
I want no elbow jog—
Hero she may wait upon each guest,
Lady-in-waiting, Sunday drest,
(Behind the door, I think is best.)
So she remains in cog.

Whatever little scraps and screws
In the back kitchen we may use,
In fish, or fowl, or meat.
Her skinny "finger" clean and keen
"In every pie," must not be seen,
In pies we have to eat.

Virginia. — *TARPLEY STARR.*

Dangers we are Apt to Forget.

Most of us are on our guard as to dangers from burglars, fires and contagious diseases, and we are also becoming tolerably careful to guard against the ubiquitous malaria which threatens us outside of the house, but the malaria that may be lurking within the house or about the premises does not excite the alarm it should. Malaria is simply bad or poisoned air and is quite as dangerous, indeed more so when it reaches us in the form of bad odors from neglected nooks and corners as from the marshes, and, no doubt, marshes and other condemned localities often get the credit of what in reality is due to overlooked contagion about the premises. We hear of death in the pot and in the dish-cloth; of the dangers of unventilated bedrooms and foul cellars; but these are only a few of the real sources of danger to which we are exposed. By far the worst one and the one we most neglect, is the well from which the water we constantly use is procured. Even when it becomes palpable to the senses, the danger therefrom is so little appreciated that people often allow its use to be continued until perfectly convenient to attend to it, and are in no haste to make it convenient. Some foreign substances, such as dead frogs or rats, are what they search for, and, if found, all is well; if not, why then all the same, the well is clean and they expect no further trouble. Probably this relieves the difficulty for a time, and whatever the impurity may be is only taken in homeopathic doses until there is another accumulation sufficient to taste or smell. It is time that the least intelligent should know that a well acts as a drain to the earth for some distance more or less, according to the nature of the soil, and therefore if the soil is not kept clean the impurities find their way into the well.

The effort to provide ourselves with some of the conveniences so common to our city neighbors has greatly increased our danger in this respect. We want the water in our kitchen and if possible in bath rooms, and, of course, when brought in it has to be taken

out again and in both places gathers much that is foul before it leaves. Now with us, under the most favorable circumstances, the amount of water is very small compared with what usually passes through a city house, and therefore it has not the force to carry away impurities, consequently the waste pipes hold much that would naturally be removed by a continuous running of hot and cold water. Besides this, we have rarely any natural or sufficient way to carry such waste beyond the reach of the atmosphere we live in or the ground our well-water percolates through. If there is a cess-pool within five hundred feet of the house, there is a chance that the well is poisoned thereby, and the family suffer more or less in proportion as nature helps them to throw off the effects. Were it not that nature is its own doctor oftener than we suspect, the truth of these facts would be forced upon the attention. As it is only occasionally that nature fails the cause is not understood, and patient and doctor go a long way from the true source to discover it.

Under-ground drains of every description are dangerous to us for the reasons I have given; there is no possible way of keeping them pure. We may conceal for a time inevitable results, but in time somebody must suffer. The only way is to carry all such waste in open gutters far enough to spread over fields where they will form a blessing instead of a curse, by fertilizing the ground. These gutters may easily be kept in order, and when they are neglected so soon tell the tale that common decency will induce necessary attention to them.

Cellars, as they are commonly used in country houses during the winter, are another prolific source of ill health. People who are very careful to have them nicely whitewashed and clean and well aired during the summer, will fill them in the fall with vegetables, liable to decay, and close doors and windows to keep them from the frost and also to make the house warmer.

The result of this is a reservoir of air more or less impure, ready to ascend to the living rooms, with every chance-opening of a door and seeking every crack and crevice to escape at all times. In the meanwhile, some one may be lingering above with some unaccountable weakness; a scarlet fever, diphtheria or other malignant disease make its deadly visitation and nobody knows from whence it comes.

If weakly and ailing people would give half the attention to the atmosphere they live in that they do to their food and eat thankfully such reasonably good food as is placed before them without thinking so much about it, we would probably have fewer dyspepsies and less need for drugs.

Certainly as air and water enter into every sustaining source of life, we should have a care that they may be as pure as it is possible to have them.

CERES.

The Girl's Own Room.

As a medical man I have often the honor—an honor born of necessity—of seeing the inside of a girl's own apartment, and a single glance reveals to me very much of my patient's habits of life and character, and these in their turn assist me greatly in laying down a plan of treatment. But what, it may be asked, has a doctor to do with the composition or arrangement of window blinds or window curtains, or with the shape or framework of one's looking glass, or with the appearance or material of the carpet? Very much, indeed, as I am prepared to show you. And not only with these, but with nearly every article that finds, or ought to find, a place in your apartment.

First, then, let me tell you that there are many things less inimical to human life than is dust. It is dirt in a dry state, it collects and harbors matters that cannot be breathed

with impunity, nay, even the very germs of disease itself are produced by it.

Many a young girl sows the seed of future illness, which eventually proves fatal, by sleeping for a time in a dusty room. Hence, I say, if you value your health, shrink from dust as you would from a deadly foe. Don't harbor it; don't let it lie about anywhere; it finds its way readily in with encouragement, so take especial care not to bring it in, either on your dress or on your boots; give it as few places to rest in as possible; and, lastly, see that it is removed every day. It must be most carefully swept not brushed, from the carpet, probably after a sprinkling of moist tea leaves and it must be mopped with a duster from the furniture. In this latter sentence I am careful to choose my words. I might have said "switched" instead of "mopped," but if it be merely switched off, it only flies about for a time, gathers new impurities, and then comfortably re-settles. And, bear in this mind, for it is important: the furniture should not be dusted for fully half an hour after the carpet has been swept, for, however well the latter may have been done, some dust must have risen, and this must have time to fall. I leave others to speak of the unthriftness of dust, and the injury it produces to one's dresses.

After the dust has been removed from the furniture it ought to be rubbed over with a dry and clean duster, and, if possible, made to shine. The last thing to be rubbed up is the mirror or mirrors, and the more radiant these are kept the better. The mirror in a girl's room should be of the best quality, even though small, but those who cannot afford an expensive glass may, at all events, always have a bright one.

A thick carpet in your room may feel comfortable, but it is not really a healthy one. The window hangings should not be of thick material, which would harbor dust, and in summer at all events, they ought to be as light and cheerful-looking as possible. Curtains of the bed and bed-quilts to match, if you please. The bedstead itself should be graceful in shape, and either French as to curtaining or half-tester. A bed without hanging has a kind of hospital look about it, while those terrible four-post tents closely curtained all about, are not fit for a girl's room; they seem only made for old, old men to die in.

If you want to be healthy do not have a too soft bed. Feathers for old folks; for the young a mattress. And, remember, you will have a better night's rest if the bed-clothes are light and warm than if they are heavy. Heavy blankets are as bad as heavy suppers; both conduce to restless nights, nightmares, and a heavy head in the morning.

The window-blinds in a girl's room should not be constructed for excluding the light—the more of that the better—but merely for obtaining privacy. Probably the best for either winter or summer are Venetian. What I have said about light applies as well to fresh air. Do not be afraid of admitting it into your room by day, neither by night, unless damp, chill fog are about. I am sorry to say that thousands of kind and affectionate mothers spoil the health of their young daughters, and that, too, irretrievably, by keeping them so much in stuffy, non-ventilated rooms.

Articles of furniture should rather be few than over numerous, bearing in mind that every cubic foot of air is of the greatest importance. The ornaments on the mantelpiece should be few, but they may be tasteful. In winter a cheerful fire should burn in the grate; it ventilates as well as warms the room. And as soon in early summer as it is determined to dispense with the use of fires, the chimney should be clean swept, else the unwholesome smell of damp soot will often cause great annoyance. Some people try to obviate this by closely stuffing the chimney; they thus do away with a ventila-

tor. Those girls who dwell in towns will ornament their grates in summer with some kind of fire-screens; dwellers in the country have the advantage, they have green boughs and flowers.

The walls of a girl's room should be graced by pictures. They ought not to look clumsy. They need not be expensive—water colors, engravings, and photographs, the latter framed, probably, simply with straw work and ribbon; or even birthday-cards, if prettily done, help to throw a bit of light and beauty on bare walls. Scripture texts also look well, but much depends on the taste of the occupier. Again, what can be prettier than those little wall brackets of fretwork, with tiny ornaments of flower vases placed thereon?

Growing flowers look pretty, but they are not always wholesome. Those that are healthy to have in a room possess either no scent at all or a pleasant one; but cut flowers are charming.

In this short paper I have aimed at depicting, or trying to depict, what a healthful room should be. Depend upon this, that a bright and cheerful room helps at least to make a bright and cheerful inmate, and that cheerfulness and health are inseparable companions.—*Medicus, in Girl's Own Paper.*

Home Items.

If you have trouble to get your last year's catsup bottles perfectly clean, after washing them thoroughly in suds and rinsing in clean water, chop a potato quite fine, mix it with a little warm water, put this in the bottle and shake it well; it will surely remove any foreign substance.

The Philadelphia Times says: "It is not to be expected that servants, who earn only a few dollars a week and live in the stifling kitchens, can teach their mistresses the common sense of housekeeping. If they were able to do so, they would find other and better employment; but it is reasonable to expect that women, who assume the responsible direction of a house, should study the common sense of housekeeping, and of everything that promises to lessen labor and to add to the comfort of both family and servants."

WASTE in little things makes away with many a hard-to-be-accounted-for dollar in a year. Do not throw away the starch which is used in making cold starch each week; let it stand after using and settle in the bottom of a clean bowl; when the water is clean above it, drain it off; let the starch dry, cover the bowl to keep the dust away, and this starch is ready for use next washing-day. Of course you may need to add a little to it.

WATCH THE LITTLE FEET.—Too much attention cannot be paid to the feet. Every child should be provided with rubber overshoes, and wear them whenever the pavements are damp, taking care that they are instantly removed on coming in-doors. High rubber boots, lined like the well-known Arctic overshoes, are a comfort and a very great convenience to boys and girls in snowy weather. The boy who can resist the temptation to plunge into a snowdrift, and who can walk quietly through a clear path, with a wall of snow on either side, is anomaly in boydom. These boots enable him to dare the deepest drifts with comparative impunity. Every child should have at least two pairs of shoes and stockings, and shoes should be changed and the feet rubbed dry whenever there is the least suspicion of dampness. Nothing lays the foundation of so many colds as damp feet; while a wetting is rarely injurious if the clothes are at once changed. It is not the getting wet but the remaining so which does all the mischief.

Improve the Kitchen.

The question is, what shall be done to the kitchen to make it bright and attractive, and the suggestions given are intended particularly for country kitchens, which seem to be very often the thoroughfare, if not the resting place for the family. Vines, of course, would be in the way in the summer, and at that time they are not needed so much, as the kitchen doors are frequently draped with honey-suckles or morning glories on the outside, as well as the kitchen windows. But in the winter, when it is cold and cheerless outside, and the graceful vines have turned into brown, dead-looking stalks, try to have something green and fresh in the kitchen. Train a vine, if only a sweet potato vine, on one of the windows, and besides, having saved all the empty cans from canned fruit or vegetables, paint a couple of them red; have two holes bored in each near the top, through which to run the strings, by which they are to be suspended over the window. In one plant, "The Wandering Jew," or a Tradescantia, so easy to grow from slips, and which will soon run on the sides, making it a thing of beauty; and in the other, which must be nearly full of water, lay an old sponge or piece of white cotton, over which sprinkle flax seed thickly, keeping the cotton moist where they are sown. In two or three weeks these will sprout, and the cotton will be covered with a beautiful green, mossy looking growth.

Save the old kitchen chairs; cut off the broken backs close to the seats, also the lower part of the legs, to make them a convenient or comfortable height. Then make a bag the size of the seat, of some old ticking or other material, and stuff it with fine shavings or silvered husks, and after nailing it securely on the seats, cover with bright cretonne or chintz. The former can be bought for twenty or twenty-five cents a yard, and would be forwarded from a city store on sending the order, and giving an idea of the ground color wanted. Two or three palm leaf fans painted a bright red would decorate the wall very prettily. If the edges are worn, they can be bound with some material of the same color. The lower part of the dresser would look well, if, instead of being covered with the usual pieces of scalloped newspapers, it were covered with a strip of crash towelling, the ends fringed out, and hanging down about a quarter of a yard or so, and the center ornamented with a large letter in red cotton or worsted embroidery.—Ez.

A GOOD BREAKFAST NECESSARY IN WINTER.—The breakfast we take in winter will determine our efficiency for work in the day, and will so influence our whole beginning for that period of time that no aftermeal can correct. The breakfast in winter must contain more nitrogenous food than in summer; it is absolutely needed. You must store heat to furnish material for absorption and for maintaining vitality; add to this nitrogenous food something that will disengage heat from the blood and keep up temperature and you may defy the coldest day. Your face may feel it, your hands may feel it, but your body will be impervious to it and go on disengaging that inward heat which can alone stand against the lowest temperature without. If this first meal has been properly attended to we may presume that vital action can be maintained in full force for five hours at least before it needs replenishing.

CORN FRITTERS.—Six ears of green corn grated from cobs, as fine as possible. Three well-beaten eggs; a table-spoonful-and-a-half of flour; season with salt and pepper; mix well; drop a table-spoonful at a time in boiling lard and butter mixed; fry brown and serve hot.

The American Farmer

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At the office of THE AMERICAN FARMER are located the offices of the following organizations, of each of which its proprietor, Wm. B. Sands, is secretary:

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Maryland Dairymen's Association.
Maryland State Grange, P. of H.
Agricultural Society of Baltimore Co.
Also, of the Maryland Poultry Club,
Thos. W. Hooper, Secretary.

BALTIMORE, OCTOBER 15, 1888.

The Future Cattle Trade of Baltimore.

At the recent meeting of the Directors of the Baltimore & Ohio Railroad Company, President Garrett said:

"It was interesting to note that our experiences in the cattle trade had illustrated the advantages of this port in connection with this traffic. The ships coming here were constructed especially for the cattle trade, and have met with remarkable success. The arrangements are of such a comprehensive character that they look to making Baltimore a great cattle market, which means a larger supply for home consumption, more competition amongst sellers, and with the completion of our Philadelphia branch, Baltimore will have a business which will be developed to the standard of the 650 acres of land of the Baltimore & Ohio Company owned on the Patapsco. The president had the satisfaction of conferring on the subject of cattle transportation with persons connected with the English government. It is believed there must be a great future for the cattle and provision trade of the United States with Great Britain. At present the cattle trade is limited by what is known as the compulsory slaughter act, under which all cattle arriving in Great Britain have to be slaughtered within ten days after their arrival. There is a great desire for cheap meat, and prices in Great Britain maintained artificially for the protection, as is claimed, of the agricultural interest; but if the compulsory slaughter act were abolished the British farmer could purchase and fatten imported American animals, and thus lead to a great and profitable business. Assuredly it is to the interest of our government to meet the efforts of the British government in the plans of examination and supervision which will prevent the spread of contagious diseases."

"The attention of influential parties abroad has been called to the question of emigration in connection with our railroad system in

Eastern and Western Maryland, West Virginia, and the extensive regions in Virginia upon the Virginia Midland and tributaries, by which a large additional population from France, Switzerland and Great Britain will, it is expected, be established. This matter is now in the hands of influential parties, and it is hoped that at no distant day the plan will be placed in effective operation."

AGRICULTURE IN THE SOUTH.

Progress in Agriculture—Is there any Room for Further Improvement?

BY TH. POLLARD,
Ex-Commissioner of Agriculture of Virginia.

That there is room for further improvement in agriculture in Virginia and other Southern States is made manifest to any observant farmer who will travel over the country and carefully survey it. The progress in agriculture in the region referred to has been very great, as we have demonstrated, but much remains undone. We mentioned in our last that much of Tidewater Virginia is very badly cultivated, referring particularly to that portion visible from the railroad which traverses the country between Richmond and Old Point Comfort. This is a type of many other portions of Virginia, but we hope there are no other lands in the State so badly cultivated, and we trust an article prepared by the writer for the October number of the *Southern Planter*, on the "Improvement of Lands in Eastern Virginia," may have the effect of stirring up the farmers of this region to the importance of going to work to renovate their worn farms. The plan we suggested was the use of fine ground South Carolina phosphates (floats) and kainite (German potash salts) in proportion of two-thirds of the former and one-third the latter, using from 300 to 500 lbs. per acre on peas, to be followed by wheat or winter oats, and clover in the spring, or clover might be seeded with peas alone in August. Some say that the best plan to use the above preparation is on corn, the land being prepared early in the spring or during the winter, the fertilizer to be sown broadcast, and the clover to be seeded in the corn in August. Mr. Stacy says, in the *Southern Planter*, that this plan has succeeded well with him. The writer once tried it along with winter oats seeded in August in the corn and had the next spring a fine stand of clover. The present year he used the South Carolina phosphate and kainite, 400 lbs. of the mixture per acre on oats seeded the first week in August along with peas. He was afraid to try clover, as a long continued drought was prevailing. The oats came up finely after a rain occurring about the middle of August, and are now (October 8) covering the ground with a green coat. The peas, however, came up indifferently, though they are making sufficient growth to improve the land and protect the oats in the winter. The land seeded is 10 acres, with 2 bushels oats and 1 of peas per acre. I may say here that progressive farmers have found that at least 2 bushels of oats should be seeded to the acre, and the best Northern farmers sow 2½ bushels. Some years since a club of farmers (seven in number, I think,) in Georgia determined to sow a large quantity of winter oats per acre and pitched upon 4 bushels as the quantity. The locality was near some town (I forgot which) where the land was highly improved. The yields were very large, the largest being, as well as I remember, 110 bushels and the smallest 80 bushels per acre.

Saragossa, the cow which brought the highest price in the sale, \$4,800, was purchased by Mr. Samuel M. Shoemaker, of this city. She is about six years old, a fawn, with some white; and is described as exceedingly neat in bone, with an enormous wedge-shaped body, a beautiful head, with rich, incurving horns, and mild, prominent eyes; absolutely perfect udder, with teats of good size, squarely placed; milk veins large and conspicuous, both on udder and belly; very rich, mellow skin, and Flandrine esculcheon. Saragossa was tested in April, 1881, having calved on the 16th of January previous, and made 15 lbs. 2 oz. butter, averaging 18 lbs of milk daily. She was the winner of second prize over the Island in the aged cow class in 1883.

STOVER'S GEARED CORN AND COB MILL, advertised by Messrs. J. C. Durborow & Co. is said to combine many advantages not possessed by the older patterns, and deserves attention from any parties who contemplate purchasing such a machine.

subsoils, it affords a nidus or resting place for water, a sort of sponge, as it were, to hold the water around the root of plants and chill and check their growth. The remedy for this condition of things is first to drain the land by ditching, either by open ditches or underground tile drains, the latter much to be preferred. Ditching is a great want in modern Agriculture, though much more practiced than formerly. Besides letting off surplus water, which chills and drowns the roots of plants, it opens the soil to sunlight and heat, producing "friability of soil" and adding greatly to its production. I remember visiting an old Englishman, living on James river below Richmond, (before the war) adjoining the "Tree Hill" farm of Franklin Stearns, Esq. He had a large number of grape vines and fruit trees, and I found him and a negro man spading up the earth around them, deeply, leaving a mound around each vine and tree. I asked for an explanation of his object in doing so. He said he could not afford to subsoil his land and this was his alternative, and that if he had to do without friability of soil or fertilizers, he would prefer to dispense with the latter and adopt the former. This gentleman was a Mr. Jones, and may be known to some of the old readers of the *Southern Planter* and *Farmer* as the author of a premium essay on grape culture, awarded him by the Virginia Agricultural Society and published in the journal just referred to. He came to this country with a handsome sum of money; was introduced to Nicholas Biddle in Philadelphia, and by him was induced to invest his fortune in the old U. S. bank, which went the way "of all flesh" when this famous institution was strangulated by the renowned Andrew Jackson.

Much land in Virginia and other States has suffered for want of ditching and want of adequate plowing. This reminds us of what is related of that experienced and successful farmer, John Johnston, a Scotchman who, a considerable number of years ago, settled a farm on Cayuga Lake in the State of New York. His neighbors perceived him cutting ditches in almost every portion of his farm; localities where they could not see the want of draining. They enquired of him why he was thus spending so much money and doing so much useless work, as they thought. His reply was, "verily the whole earth needs draining." He persisted in his plans, and it is said that his is now one of the most productive farms in the whole country. It is well known that the English farmers of the present day frequently locate ditches every forty feet on lands which to the inexperienced eyes of American farmers seem to require no drainage. Very few appreciate the advantages of deep, friable soils, well accessible to heat, light and moisture. Some of the batteries which were constructed to defend the city of Richmond in our late civil war, have been levelled for the purpose of cultivation, and in doing so, of course, the supersoil has been merged and covered in subsoil, and yet where these batteries stood we find now much the best wheat, clover and corn, growing, too, on the red clay subsoil which has been turned up, no gray supersoil being visible to the eye. Some years since, the city of Richmond wished to put down supply pipes to the new reservoir through some land owned by the writer. The permission was given, and a broad opening, ten or fifteen feet deep was made to receive the pipes; the dirt thrown out was suffered to lie from October or November to February and was then filled in and the field seeded to oats; where the pipes had been laid and covered in, the oats were nearly double the height of those surrounding. In the fall, I had occasion to ride through the field on horseback and found a weed of "lamb-quarters" had grown up over the pipes, coming up to the top of my head as I sat on my horse.

Selected Household Hints.

A good way to cleanse a frying-pan or kettle, is to boil wood-ashes and water in it.

Make no remarks with pen or pencil on the margin of any book that does not belong to you. Returned borrowed books promptly and in good order.

Thin slices of bread dipped in tomato sauce, and then fried in butter until they are brown, take the place of an omelet. This is a good way to utilize stale bread.

If you clean your mirror with a soft paper instead of cloth, time and trouble will soon be saved, as there will be no lint, and the glass will have a better polish.

A little powdered borax put in the water in which laces, muslins and lawns are washed will improve their appearances greatly; use just as little soap as you possibly can.

The rind of a lemon is recommended by a noted cook as giving a delicate flavor to tomato catsup. It should not be put in till the catsup is done and is cool. Cut it in small pieces.

When about to broil fish it is a good plan to grease the gridiron with a little lard. You will not be troubled then by having half the fish sticking to the gridiron when you attempt to remove it to the platter.

When you accept an invitation to visit, go promptly at the time set, and take an early opportunity to let your hostess know how long you expect to stay, if no time has been specified in the invitation. That will enable her to plan her arrangements accordingly.

The following enamel for shirt bosoms will give a good polish, if the shirts are properly ironed: melt together with a gentle heat one ounce of white wax and two ounces of spermaceti; prepare in the usual way a sufficient quantity of starch for a dozen bosoms; put into it a piece of this enamel of the size of a hazelnut and in proportion for a larger or smaller number.

Calicoes and muslins of doubtful color are a source of perplexity to many housekeepers, when they come into the laundry. One housekeeper writes, that, before attempting to have washed any dress that is liable to lose its color, it is her plan to dip it first into cold soap and water, and hang it to dry. Then wash in tepid water; if very much soiled put soap in the water. Rinse the dress in salt and water. The salt sets the color. For goods, the color of which is liable to run, avoid the use of hot water.

One of the secrets of making good mashed potatoes is the mixing of the ingredients all hot. Put into a hot earthen dish, placed at the side of the range or stove, where it will remain hot, your milk, or cream, butter, pepper and salt. When these ingredients are all hot, add the boiled potatoes the instant they are done, and mash them without stopping, until they are quite smooth; stir for a few minutes, or until thoroughly mixed with the cream and butter, and serve while hot.

At the present high price of butter the careful housewife should see that no drippings from beef or mutton are thrown away, and that all the bits of suet left on slices of beef are cut off before the meat is cooked; keep them in a cool place, and when you have enough to cover the bottom of the basin "try" them on the stove, and save the fat thus obtained, for cooking purposes. As foundation for gravy, and to season warmed over potatoes, it is excellent. Bacon and salt pork gravy should also never be wasted.

B. S. send the following recipe for preparing cod-fish cakes: Cut the codfish in pieces and soak these for an hour or more in luke-warm water; then remove the skin and bones, and pull the fish into fine shreds, and place over the fire in some cold water. When it begins to boil, change the water for some that is fresh, and bring this to the boiling point, but do not let it boil, for that will make the fish tough. While preparing the fish, boil some potatoes; mash these while

still hot, and add a little butter. While both are hot, mix the fish and mashed potatoes, in the proportion of one part fish and two parts potato. Form into thick flat cakes. Fry these cakes in a saucepan, with a little hot butter. Be sure to mix the potatoes and fish while both are hot, for the cakes will be very much better than if this is done when the ingredients are cold.

A little taste and ingenuity in the arrangement of simple things often supplies the place of money; for instance, I saw the children of a poor mother dressed with such a neatness and taste that it was difficult to think of how little the materials of the clothing cost. The collars attracted the attention, because children require so many, if they wear them at all. These were made in the form of deep ruffles, with a narrow standing upper ruffle; the material of which they were made was the open work cotton goods which can be purchased at from twelve and a half to eighteen cents a yard, and a yard would make at least six of the ruffles. The edges were trimmed with very narrow lace, but the effect was so good that the example seems worthy of following.

Farming as an Occupation.

Messrs. Editors American Farmer:

I have been a reader of your paper for a long time, and from it I have gotten much valuable information, in fact the number before me (of November, '81, the old book form) which I get out this evening for reference, I learned something from it that has more than paid me for my year's subscription, so that I am indebted to you really, and not you to me. I, however, consider your paper my friend, and to whom else can we go but to friends for advice?

My business is so cut up now that there is scarcely more than a living in it and requires hard work and many hours a day at that, and I am about tired. I have a good chance to sell and can save enough to buy a nice farm and stock it well; have always had a hankering for a farmer's life, and on the three acres I have, have proved to myself at least that I can manage more, and successfully too; I am in the prime of life and only complain now occasionally from overwork of brain and want different work. I have broached my ideas of farming to several friends, one and all of whom say, "you, a farmer," "why you couldn't begin to make it pay;" so I have been led to do some figuring, as I do in my business, and I want to give you the result of them, asking how far I am out of the way and for advice. Were it for only myself. I would not for a moment presume so much, but I know there must be others of your subscribers "in the same boat," and if not, their boys are coming up to manhood and want some business, and if it is demonstrated to them that there is money in it if rightly worked, you will have accomplished some good by a reply. I start out with the idea of an A No. 1 farm in excellent condition, to cost \$15,000; 100 acres of tillable land; do not count the cost of 20 head of fine Jerseys, a couple of teams and farming utensils sufficient to work the farm which I offset by what my family needs of the produce, and with all these and 15 acres of small fruits in good bearing, I start and get the following yield: From 10 acres potatoes, 125 bushels per acre; 50 acres hay, 2 tons per acre; 10 acres ensilage, 10 tons per acre, which should keep my cows, with the products of 15 acres reserved roots, straw, etc.; this, with the 15 acres of fruit, makes the 100 acres.

Now, as to the cost of running it, I put two men's wages, which would run it the year round, excepting in harvest time, at \$20 and \$15 per month, \$420, and count their board outside of what the farmer produces at \$240; fertilizers, \$500; 10 tons lime cake, \$300; and supposing I buy my corn meal, 20 tons, \$420; extra help during

the year, \$250; repairs, etc., \$200; insurance, \$200; taxes, \$250; interest on \$15,000, \$900; making in all an outlay of \$3,600, and in this I have tried to be liberal and added all I could think of.

As to receipts, you will remember I figure for a good yield, and, in fact, it is on all these questions that I ask how far I am wrong: 1,250 bushels potatoes at 50 cts., \$625; 75 tons hay (reserving 25 for other stock, supposing the ensilage to keep the cattle) at \$18, \$1,350; 15 acres of small fruits, \$1,000; 20 cows at \$40 per head, \$800; 30 hogs, at \$20, \$600; poultry, \$100; and increase of stock, say, \$250, making in all \$4,730. If these figures are correct, I have not only interest on my capital, but \$1,070 profit aside from the farm produce consumed by my family as just so much toward their support, besides good health in all probability and a contented mind, which is a "continual feast" they say. These figures of profit do not seem very large for the outlay of capital it is true, and if correct, and my friends saw them as "actual facts" at the end of the year, they would, no doubt, say, "I told you so," but where one wants only a good living and enough to "buy the baby a frock" once in a while, instead of working himself to death in his grasp for the dollar, this should satisfy any reasonable man, I think. I trust you will have leisure some time to wade through these figures and comment on them, for I expect to be guided by your judgment, and having just such a place in my mind's eye as I have described, which can be had, and correct in my calculations, I mean to secure.

I take and read all the agricultural journals of the day, that is, of any note, and think much more of reading them than I do my "daily," but from none have I taken such comfort or learned more than from your ably-edited paper, and as I am considered a fair judge of stock (having some fine) and my opinion is frequently asked as to which is the best paper for general information, I毫不犹豫地说 THE AMERICAN FARMER, published in Baltimore.

Respectfully yours,

A JERSEYMAN.

[We should be glad if some of our readers would give their views on the above. We will revert to it ourselves in a future issue.—EDS.]

Fertilizers on Clay Soil.

Speaking with an intelligent gentleman in Baltimore a few days ago in reference to the stubborn character of our clay soil, and the great difficulty in growing large crops of vegetables on it, he asked if I had ever tried the effects of Potash as ameliorating its condition. My last spring's experiment with kainit at once occurred to my mind, and the wonderful growth of Asparagus which followed its heavy application. On the other hand I have never been able to notice much good effect on our soil from the application of hard wood ashes, which contain a large percentage of potash. A high authority in England asserts that potash never produces much benefit in a heavy clay. So, on my return home, I determined to examine the mechanical condition of the soil of the Asparagus bed. It is certainly much more friable than the soil immediately adjoining, which had no kainit; but then we all know that the bulk of kainit is chloride of sodium, (salt), while the potash in the form of sulphate, is seldom, if ever, more than 25 per cent. So that the question occurs, is not the mellow condition of the soil due as much or more to the moisture absorbing character of chloride of sodium, as to the action of potash. Potash, it seems to me, ought to be more active in soil abounding in humus and carbonaceous material, that is, a black muck, than in this red limestone clay. Then again, will not a heavy application of coarse barnyard manure in fall have a tendency to

make the potash more active in spring, than if manure alone had been used at both seasons? Salt has long been considered a special manure for Asparagus, and on the Eastern Shore we always found the wild asparagus growing along the edge of the salt marshes; but has the salt a manurial value or a mechanical one in assisting its growth?

I used on our lawns a mixture of one ton of Acid Phosphate and half a ton of Kainit. The grass has grown remarkably, but the season has been such that it would probably have grown strongly anyway. It remains for a dry season to show whether the affinity of chloride of sodium for moisture, will keep our grass on spots where the rock comes close to the surface. The potash in the kainit is a sulphate. Would the muriate of potash have a better effect on a clay soil? I ask these questions in hope that some one who has more time for making correct experiments may answer. If I jumped at once to the conclusion (as cultivators are too apt to do) that the friable condition of my asparagus bed is due to the application of sulphate of potash, and rest satisfied that I have found a cure for clods, I might get up as pretty a hobby as those gentlemen who attribute every success in the growth of their crops to the absence of ammonia in their fertilizers. I am preparing to make some experiments in the greenhouse during the winter in the use of different chemical solutions on plants of some kind in a uniform soil of mellow loam, and hope to learn something of value. Some day the farmers of Maryland may have an Experiment Station, where these questions can be worked out by men who can devote their whole time to their solution.

W. F. MASSEY.

A Wonderful Jersey Cow.

The Jersey cow Mary Anne of St. Lambert, 9770, the property of Mr. Valancy E. Fuller, Hamilton, Ont., heretofore referred to in our columns, has been under a continuous butter test for seventeen weeks, and has made in that time 417 lbs. 24 ozs. of butter. The test for the week ending September 29th was made under the supervision of a committee of the Canada Jersey Breeders' Association, who reported that she gave in the seven days 251 lbs. of milk, from which was churned 26 lbs. 9 ozs. of unsalted, and 27 lbs. 9 $\frac{1}{2}$ ozs. of salted butter, the first seven milkings giving 12 lbs. 13 ozs., and the second seven 14 lbs. 12 $\frac{1}{2}$ ozs. of salted butter. The following is their statement:

It is with much gratification we send you herewith the result of the test of Mr. Fuller's great cow Mary Anne of St. Lambert's 9770 (September 23d to 29th, both inclusive), which must prove most pleasing to every Jersey breeder.

It will be observed that, although it was the seventeenth week of her test, it has surpassed any of her former ones, and the milk was greater in amount than any other week, with the exception of one week in May and two in June. Mr. Fuller and Mr. Norton, his able manager, attribute this to greater and heavier feeding than at any other time, although we do not consider such feeding very excessive. She was fed three times per day as follows: September 23d and 24th, three times a day, three quarts ground oats, two quarts pea-meal and one quart ground oil-cake. The other five days of test the above quantity five times in the day and evening, making eighteen and thirty quarts, respectively. Mr. Fuller, at the end of the second day, having stated his intention to demonstrate her full capacity on extra feed.

Mary Anne is a cow of grand constitution, with a great relish for her feed, which she consumes with avidity, and would always have taken far more had she been permitted. She always seemed hungry; at no time was

she fared in the slightest by her additional feed, and we think it could have been increased, for the purpose of this test, with perfect safety, though we have no doubt on a long test moderate feed will prove the safest. She appears, and is, in perfect health, and her appearance shows conclusively she has not been inconvenienced by her additional rations. On one occasion we tried her to see if she would drink any milk, but nothing would induce her to do so.

We were much gratified by the assistance offered us by Mr. Fuller and his manager, Mr. Norton, and with the evident desire of both of them that the question of feeding and the accuracy of the test should be placed beyond question; and we have much pleasure in bearing witness to the impartiality and fairness of Mr. Norton in all things connected with the test.

With the exception of twelve hours the cow was out night and day in a pasture of green rye, accompanied by Bertha Morgan, with no protection of any sort except an apple tree. Considering the excessively cold nights and very cold, heavy rains, we expressed surprise at the treatment; but Mr. Fuller stated he wished this test to be a fair one "without any pampering at all, and under the same conditions as any dairy test."

(Signed) WM. B. HEWARD.

JOHN EASTERBROOK.

Mr. Fuller himself adds the following comments: "I have always contended that Mary Anne of St. Lambert could have made twenty-seven pounds when fresh, had we fed her with view of an extraordinary week's record only, and this test demonstrates we underestimated her capacity. It ought to prove conclusively the power she has to respond to increased feed, as under what I consider very heavy feeding, she made at the rate of 28 lbs. 4 ozs. for the last three and one-half days. Had we been able to feed her cotton seed doubtless her increase would have been greater, but she would not eat it. I had two objects in view in ordering additional feed; first, before the green pasture was completely frozen up, to demonstrate under a proper authenticated test and in the hands of disinterested parties the real capacity of the cow; secondly, to show the great difference between a long-continued test and that of one week, and how impossible it is to form any conception by a week's test of the yearly capacity of a cow; as in the former case an undue amount of feeding may be indulged in for a week, but cannot be continued in a yearly test. This test completed her fourth month, and Mary Anne now has to her credit in those four months 417 lbs. 24 ozs. as a four-year-old."

Doing Spring Work in the Fall.

Great difficulty is experienced in doing all the work required on farms in the spring. The frost is often very late in leaving the soil. The ground is completely soaked with water formed from melting snow. Ordinarily the heaviest rainfalls occur during the months of March and April. Roads are nearly impassable for several weeks. It is, accordingly, very difficult to haul building materials, fencing or farm supplies. Teams can draw but small loads of manure, and the injury to land is considerable, as the wheels of carts and wagons cut through the sod. The entire time would be occupied in preparing the soil for crops and doing the seeding if no delays were caused by rains. If the land is not well drained, field operations cannot be carried on more than half the time. It is, accordingly, important for every farmer to arrange to do all the work in the fall that can be performed with a view of lessening the labor to be done in the spring. Unless the soil of the farm is chiefly composed of sand, most of the land designed for raising small grains may be advantageously plowed in the fall. The ground is

generally in most excellent condition to be plowed, as far as moisture is concerned. If there is much vegetable rubbish on the surface that is in the way of the plow, it can be burned off. The men on the place generally have abundant leisure. The teams are in the best condition to work. There are few insects to trouble them. Soil thrown into furrows in the fall, will require but little additional preparations for seeding in the spring. In most cases a harrow will put it in good condition for a seed-bed. Occasionally it may be necessary to use a cultivator.

If it is contemplated to use heavy building materials on the farm in the course of the year, they should be drawn in the fall. It is very difficult to move stone and brick in early spring, and both men and teams are too busy during the summer to allow of doing work not connected with farming. The fall is the best time for drawing drain tile. If the soil is quite dry it may not be best to dig the drains in the fall, but the tile should be placed on the ground. For cutting open or closed drains in land that is permanently moist there is no season as favorable as the fall. The ground then contains the minimum amount of moisture. It is easy to locate the places where the water issues from the ground, and to dig the drains that will carry it away. The fall is also an excellent time in which to construct fish-ponds. Peat designed for fuel or intended for the bedding of animals can be dug, dried and brought to the place where it is wanted and stored to good advantage in the fall. Dried peat is an excellent absorbent of liquid manure, and a supply of it should be provided for the stable and hog-yard.

All the manure that has accumulated in stock-yards and about stables should be removed in the fall. It can be spread over the grass land that has begun to exhibit marks of loss of fertility to good advantage. It will be dissolved or disintegrated by the late rains and carried to the roots of the plants. It will enable them to withstand the effects of the cold, and will cause them to yield a large crop next year. The droppings of cattle and horses in pastures should be broken up in the fall and scattered over the ground. If they lie in a compact form they will prevent the growth of grass beneath them and cause that in the vicinity of them to be so rank that stock will not eat it. If broken up and scattered they will enrich a large amount of land.

It is advisable to completely prepare the soil for the certain crops that must be planted very early in the fall. In many localities it is best to prepare ground for onions in the fall. The surface should be thoroughly cleared of stones and vegetation, the manure, which should be well rotted, spread over the surface and spaded or plowed in. Treated in this way it will only be necessary to employ the harrow and rake in the spring before sowing the seed. It is necessary to sow onion seed very early in the spring to insure a good crop. The weather is often so unfavorable in the spring that the ground is in no fit condition to prepare for sowing till it is too late to expect a good crop of onions.

Ground on which strawberry plants are to be set in the spring can be prepared to good advantage in the fall. The surface should be well cleaned, the manure distributed and turned under with the plow or spade, and the soil thoroughly pulverized. If there are seasonal rains after the ground is prepared the plants may be set out in the fall. On the approach of cold weather they should be covered with straw to protect them during the winter. Unless a farmer lives where good sledding may be relied on in the winter a supply of fuel should be laid in during the fall. Coal can always be obtained on better terms while the weather is moderately warm than after it becomes quite cold. A team will haul twice as much when the roads are in good condition as after they are soaked with water. Coal obtained early in the fall will be in much better condition than that procured later in the season. It will be dry, and will accordingly weigh less. A supply of fuel secured in the fall will prevent much of the trouble and suffering that many have experienced during some recent winters.—*Chicago Times.*

Death of Judge Furman of Georgia.

We regret very much to notice the death of this gentleman, at the early age of thirty-seven years. Judge Furman attracted wide attention as an agricultural writer by narrations of his methods of composting waste materials for making cotton and other crops in the Southern States, and his success in producing good crops at comparatively small expense, was everywhere regarded with much interest. It is to be deplored that a man who had suddenly become prominent in agricultural investigation, should have been cut off at so early an age in the midst of a career which promised great usefulness.

A. M. CARE, of Salem, Ohio, has sold to J. V. Le Moine the celebrated Jersey bull "Ursa Major," 3237, which has gone into Mr. Le Moine's herd on Rhode river, Md.

A coated tongue, headache, bad taste in the mouth, a dull, drowsy feeling, are sure indications that your liver is torpid and that there is a collection of foul humor in the stomach. J. M. Laroque's Anti-Bilious Bitters quickly and effectually correct these evils. 25 cents a paper and \$1 a bottle. W. E. Thornton, Baltimore and Harrison streets.

Lord Chesterfield, the pink of politeness in his day, said that a true gentleman should be always *savvier in mode, fortier in re*, which means, mild in manner, strong in action. This is precisely the character of Ayer's Carthartic Pills. Nothing operates so mildly and yet so powerfully in removing disease. *

Ayer's Sarsaparilla acts directly and promptly, to purify and enrich the blood, improve the appetite, strengthen the nerves, and brace up the system. It is therefore in the truest sense an *alterative* medicine. Every invalid should give it a trial.

Baltimore Markets—Oct. 16.

Fleas.—The offering is ample, but holders are confident and the market is quiet and steady under a fair demand for local consumption. We quote as follows: Howard street and Western Super, \$3.25 @ \$3.75; do. Extra, \$3.75 @ \$4.75; do. Family, \$5.00 @ \$6.00; City Mills Super, \$3.00 @ \$3.75; do. Extra, \$4.00 @ \$4.75; do. (Bio Brands) Extra, \$3.75 @ \$6.00; Baltimore Winter Wheat Patent, \$7.50; do. High Grade Family, \$8.50; do. Second Grade Extra, \$6.25; do. Third do. do., \$8.00; Fine, \$2.75 @ \$3.00; Rye Flour, \$3.75 @ \$4.00; Corn Meal, per 100 lbs., \$1.30 @ \$1.35.

Wheat.—The market for Southern Wheat is quiet and about steady, under a moderate offering. Damp to choice longberry sold at \$1.10 @ \$1.15, and prime Flats at \$1.10 and common at \$1. Western Wheat ruled dull and fairly steady, and closed a shade firmer in tone. The closing quotations were as follows: Spot, No. 2, \$1.05 @ \$1.05%; November, \$1.07 @ \$1.07%, and December, \$1.09 @ \$1.10%.

Corn.—A small lot of new Southern white Corn, shelled, arrived to-day and sold at 70 cts. Yellow brought 62 cts. Old white sold at 67 cts. for prime and 54 cts. for fly-cut. The market for Western continued dull and purely nominal. The closing prices were: 55 @ \$55 cts. for spot; 67 @ \$55 cts. for November, and 55 @ \$55 cts. for year.

Oats.—There is no pressure to sell, but the buyers are cautious, and the market is quiet and fairly steady. We quote Maryland and Pennsylvania at 55 @ \$55 cts.; mixed, Western, \$4 @ \$55 cts.; white do., 77 @ \$55 cts.

Rye.—There is only a moderate offering, and the market is steady but quiet. Receipts to-day 512 bushels. Sales were at \$2 @ \$5 cts. for good to choice. **Live Stock.**—**Beef Cattle.** There has been an increase in the number of offerings to-day, and the market has been very dray throughout. We quote as follows: Best, \$8.50 @ \$8; that generally rated first quality, \$4 @ \$5; medium or good fair quality, \$3.25 @ \$3.50%; ordinary thin Steers, Oxen and Cows, \$3 @ \$3.25; extreme range of price, \$3 @ \$6. Most sales were from \$3.75 @ \$3.75 per 100 lbs.

Swine.—There has been a fair increase in the offerings over the rather full receipts last week, with the quality about the same. We quote sow Hogs at 60 @ \$6 cts.; better grades, 7 @ \$7 cts., with extra at 7 % cts. per lb. net.

Sheep and Lambs.—There has been a moderate increase in the receipts and some general improvement in their quality. We quote butcher Sheep at 34 @ \$5 cts., and Lambs at 4 @ \$4 @ \$5 cts. per lb. gross. Stock Sheep, \$2 @ \$2.75 per head for Ewes, and Wethers 4 @ \$4 cts. per lb.

Tobacco.—**Leaf.**—Maryland continues unchanged, though business has been lighter, on account of smaller receipts. We quote: Maryland inferior and frosted, \$2 @ \$3 do. sound common, \$3.50 @ \$4; good do. \$5.50 @ \$6.50; do. Middling, \$7.50 @ \$8.50; do. good fine red, \$8.50 @ \$11; do. fancy, \$12 @ \$14; upper country, \$4.00 @ \$15.00; do. ground leaf, \$2.00 @ \$2.75. **Ohio.**—We note sales principally for export, at fall prices. We quote inferior to good common, \$4 @ \$6; greenish and brown, \$6 @ \$7.50; medium to fine red, \$7.50 @ \$10; common to medium spangled, \$7 @ \$10; fine spangled and yellow \$11 @ \$16; air-cured common, \$4 @ \$6; air-cured medium to fine, \$7 @ \$15.

Provisions.—The general market is dull and easy. A fairly active local jobbing trade is reported at full prices. Packed lots from store are quoted as follows: Bulk shoulders, 7 cts.; clear-rib sides, 8 cts.; Bacon shoulders, 7 1/2 cts.; clear-rib sides, 8 1/2 cts.; Hams—sugar-cured—16 @ \$17 cts. Refined Lard, in tierces, 9 1/2 cts. Mess Pork—new heavy—\$12 @ \$15 bbl.

Butter.—The moderate arrivals of strictly choice stock are rapidly absorbed, and the market is firm, with an upward tendency. Medium and low grades are dull and nominal. We quote: choice New York State at 28 @ \$28 cts.; fresh Western choice at 18 @ \$20 cts.; do. good to prime at 14 @ \$16 cts., and near-by receipts at 16 @ \$20 cts. per lb.

Eggs.—There is only a moderate inquiry, but the supply is not excessive, and the market is quiet and steady at \$3 @ \$3 cts. 7 dozen for fresh Western, and 22 @ \$2 cts. for choice near-by.

Cotton.—There is only a moderate inquiry, and the market is quiet and rather easier. We quote new crop as follows: Middling at 10 1/2 cts.; low middling at 10 1/2 cts., and good ordinary at 9 1/2 cts.

FARMERS who are interested in Growing Crops cheaply and successfully should write us for our pamphlet on pure fertilizers. A good fertilizer can be made at home for about \$12 a ton by composting with POWELL'S PREPARED CHEMICALS. References in Every State. Agents wanted for unoccupied territory. Apply with references.

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WINTER months are fast approaching, when I sell thousands at the regular
price for Holiday Presents. Read the following brief description and let me
hear from you anyway, whether you buy or not—

25 USEFUL STOPS AS FOLLOWS:

1—Voix Celeste.—The sweet, pure, exalted tones produced from this Stop are beyond compare.

2—Powerful Vox Belli—Hans.—Now and original. Its THUNDERING TONES are without a parallel in Organ building.

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4—Piccolo.—Variety of music which makes the Piccolo the most difficult and expressive Stop to build in this Organ.

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10—Vox Jubilante.—When used in conjunction with Stops Nos. 2, 4, 5 and 6 peaks forth most delightful music.

11—Zolian. 12—Clarinet. 13—Cello. 14—Violin. 15—Clarinella. 16—Grand Forte. 17—Melodia. 18—Bourdon. 19—Violin. 20—Viola Dolce. 21—Grand Expression. 22—Harp. 23—Violin. 24—Echo. 25—Aerostic Expression Indicator. 26—Grand Organ. The last fifteen (15) Stops are operated in direct conjunction with another (16), bringing forth, at command of the performer, new charming music with beautiful combinations, from a mere whisper, as low as voice, to a grand burst of harmony. Its MELODIOUS TONES, while using this full Organ, must be heard to be appreciated. Height 75 inches. Length 6 inches; Depth, 5 inches.

NINE (9) SETS PARIS AND GOLDEN TONGUE REEDS, as follows:—1st, Five (5) Octave Set Golden Tongue Reeds; 2d, Five (5) Full Set "Paris" Reeds; 3d, One (1) Octave Set "Paris" Reeds; 4th, One (1) Full Octave Power Box Reed; 5th, One (1) Octave Box Reed; 6th, One (1) Octave Box Reed; 7th, One (1) Octave Box Reed; 8th, One (1) Octave Box Reed; 9th, One (1) Octave Box Reed; 10th, One (1) Octave Box Reed; 11th, One (1) Octave Box Reed; 12th, One (1) Octave Box Reed; 13th, One (1) Octave Box Reed; 14th, One (1) Octave Box Reed; 15th, One (1) Octave Box Reed; 16th, One (1) Octave Box Reed; 17th, One (1) Octave Box Reed; 18th, One (1) Octave Box Reed; 19th, One (1) Octave Box Reed; 20th, One (1) Octave Box Reed; 21st, One (1) Octave Box Reed; 22nd, One (1) Octave Box Reed; 23rd, One (1) Octave Box Reed; 24th, One (1) Octave Box Reed; 25th, One (1) Octave Box Reed; 26th, One (1) Octave Box Reed; 27th, One (1) Octave Box Reed; 28th, One (1) Octave Box Reed; 29th, One (1) Octave Box Reed; 30th, One (1) Octave Box Reed; 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1883.

\$10,000,000 Surplus.

Real Insurance that does insure is the only Reliable Protection.

THE BEST ALWAYS THE CHEAPEST!

Compare with counterfeit, deceptive Assessment Schemes the following solid results of FOURTEEN TONTINE INVESTMENT POLICIES, settled the past year, in the SOUTHEASTERN DEPARTMENT of the NEW YORK LIFE INSURANCE COMPANY.

The NEW YORK LIFE'S INTEREST RECEIPTS have for years paid all Death Claims, without touching its Premium Income. More than THREE MILLIONS OF DOLLARS have been paid to Policy Holders in the Southeastern Department for DEATH CLAIMS and MATURATED ENDOWMENTS, and MILLIONS more in annual dividends the past 38 years.

Results of Fourteen Tontine Policies issued to parties then resident in the Southeastern Department, matured and settled in 1882 and 1883, for the term of ten years.

Average cost per annum, \$2.89 per thousand. At some ages, as low cost has been reached for 10 years' insurance as \$1.17 per thousand! How does this compare with the specious claims of co-operatives!

Name of insured and residence.	Policy number.	Amount of policy.	Gross amount of premiums paid.	Dividend offered at settlement.	Cash value offered at settlement.	Paid up value offered at settlement.	Table on which insurance was based.	Maturity period.
Philip Rogers, Baltimore.	95,018	\$5,000	\$1,408 50	\$610 00	\$1,300 00	\$3,000	Ordinary life.	10 yrs.
Arthur G. Brown, "	94,332	5,000	1,125 00	510 00	1,015 00	2,760	do.	do.
Luther J. Cox, Jr.	94,162	10,000	5,451 00	2,256 53	4,816 80	7,650	do.	do.
Joe M. Marshall, Annapolis.	99,650	2,000	500 00	203 00	424 00	1,100	do.	do.
W. H. Bellis,	99,651	2,000	485 60	198 00	409 00	1,090	do.	do.
W. S. Ware, West Point, Va.	98,961	1,000	223 50	106 00	210 00	550	do.	do.
W. C. Tyler, Norfolk, Va. . . .	98,158	1,000	287 20	126 74	326 74	720	30-year endw.	do.
Wm. Thompson, Hampton.	102,619	2,000	1,343 20	409 00	1,578 00	4,100	15-year endw.	do.
E. D. Christian, Richmond.	108,085	5,000	1,020 00	447 00	870 00	2,500	Ordinary life.	do.
Thos. H. Gunn,	108,086	5,000	1,289 00	524 00	1,101 00	2,800	do.	do.
Jas. Jepson, Wheeling, W. Va.	95,528	2,500	497 30	207 00	466 00	1,040	do.	do.
Geo. Z. French, Rocky Point, N. C. . . .	91,854	5,000	1,546 00	545 00	1,360 00	3,070	do.	do.
W. S. Fisher, Bridgeport, O.	98,869	2,000	728 40	262 00	740 00	2,000	15-year life.	do.
W. H. Hall, Kansas City, Mo.	96,050	5,000	646 50	646 00	1,458 00	2,760	Ordinary life.	do.
			52,500	17,526 20	7,152 07	16,008 51	35,300	

SUMMARY:

Original amount of insurance \$52,500 00
Paid up insurance offered at settlement 35,300 00
Or 67 per cent. of original policies, after 10 years' insurance of \$32,500.

Gross premiums received by the Company from above policies 17,526 20
Cash value offered at settlement of same 16,008 51
Or 91 per cent. of the gross premiums paid.

Average cost of \$52,500 insurance for 10 years only \$1,510.00, or \$1.89 per 1000 a year. 7,152 07
Dividends offered the insured at settlement 7,152 07
Or 40 per cent. on every dollar of premiums paid the Company.

Ask the facts and explanation of the unequalled cheapness attained under the NEW YORK LIFE'S TONTINE INVESTMENT PLAN, with any other desired information, by mail or personally, of J. E. JACOBS, General Manager Southeastern Department, No. 5 South street, Baltimore, Md.

Or W. H. GIBSON, General Agent Eastern Maryland, Centreville, Md.
GEO. C. BOWERS, Baltimore, THOS. W. BUCKEY, Washington,
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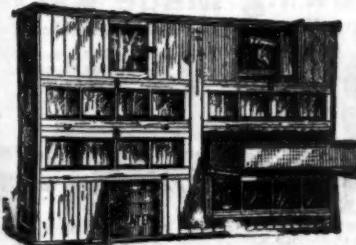
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10,000 first-class 2 and 3 year old APPLE TREES, in unbroken blocks, largely Smith, Cider and Ben Davis, at \$13 per 100.

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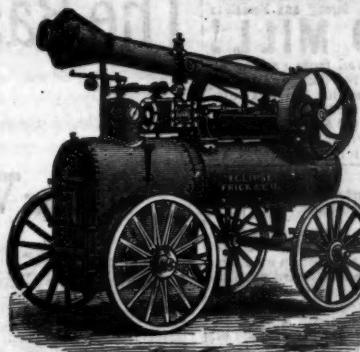
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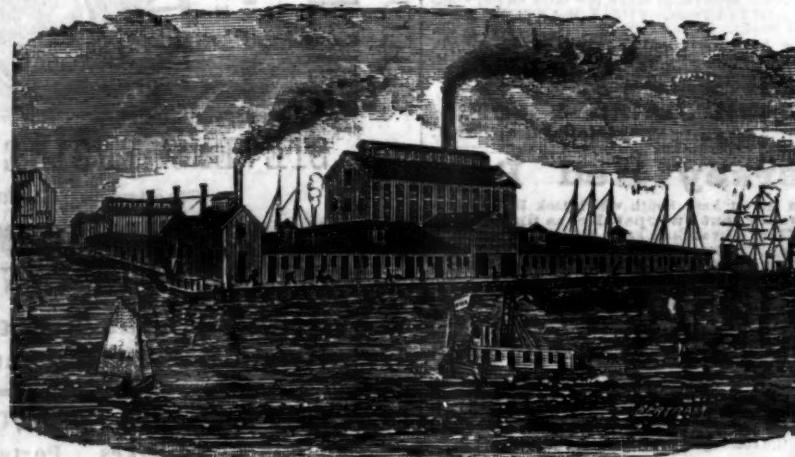
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